

CASSELL'S GUIDE TO GARDENING



H. H. THOMAS





Maria L. Fernihough
- Hollycroft
Pennant.

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GUIDE TO GARDENING





Cassell's Guide to Gardening

By H. H. Thomas
(Assisted by several Experts)

*With a Frontispiece in Colour
and Twenty-four Half-tone Plates*

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PREFACE

GARDENING never appealed to the imagination of the people in a greater degree than it does to-day. This may be due in part to the increased opportunities for recreation which have arisen during post-war days ; it is due also in some measure to the numerous flower novelties introduced from other lands and raised by florists at home which have appeared during the past few years. But, in perhaps greater degree, gardening owes its revival to the love of flowers, and a liking for cultivating the soil, which have for all time been characteristic of the people of these islands.

CASSELL'S GUIDE TO GARDENING is published in the hope and in the belief that such a work as this will enable enthusiastic gardeners to fill their flower beds and borders with those kinds that are most worthy of tending. It sets forth the best of the new and old flowering plants and shrubs and gives the salient points to be observed in their cultivation. The subjects of Fruit and Vegetable Cultivation and the Greenhouse are also dealt with.

A feature of the book is found in the section entitled "Gardening at a Glance." This contains lists and tables of flowering plants and shrubs in which all the most important details are shown at a glance ; particulars

Preface

are given of the botanical and popular names, the colours of the flowers, the methods of pruning and other details of interest. The tables also contain particulars of the pests with which the gardener has to contend, and the remedies to apply, the chief artificial manures and their uses, and much other information that is valuable to amateurs.

I have to acknowledge the assistance of Mr. Herbert Cowley who has written the chapters on New and Noteworthy Flowers and Shrubs, Lilies, Water Gardening and Gladioli; and of Mr. C. Blair who has contributed the chapters on The Alpine Border, Annuals, Plants that Remain Gay for a Long Time, and Plants that are Best Left Alone. Mr. H. H. Aitken has dealt with Insect Pests, Plant Diseases and Manures. The illustrations are chiefly from photographs by Mr. R. A. Malby.

H. H. T.

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Cassell's Guide to Gardening

PART ONE

Outdoor Gardening

CHAPTER I

PLANNING THE GARDEN

GARDEN planning is a winter dream of summer beauty ; it demands an effort of the imagination. The designer must visualize the beauty of the flowers as he makes ready for them. All his castles in the air may not materialize, but some of them will, and he will have had the joy that anticipated pleasure brings.

Garden planning is not so prosaic a task as it may seem. It does not consist merely of making a path here, building an arch there, and putting a tree somewhere else. If the plan is rightly conceived the designer will have in mind a summer's day when the garden is full of the magic of flowers. The beds and borders will be seen as a riot of colour, the lawn as a close-mown carpet of emerald green ; Roses will fill the air with their sweetness - fragrant crimson and perfumed gold among lustrous, leafy green. In imagination the designer will seek grateful shade beneath treillage thick with clustering Vine and spangled with purple Clematis ; he will visualize the beds and borders as enchanting masses of new varieties of old-world flowers.

The mellowing fruits of Pear and Plum will show between the leaves of pyramid and espalier and the luscious Peach bejewel the boundary wall or fence.

There are two schools of garden planning, and everyone must decide to which of them he belongs. He certainly belongs to one of them. If the matter is not clear, let him consider whether the path from the gate to the house shall be straight or winding. If it is to be straight he belongs to the formal school ; if winding, then the informal school claims him as its own. There is a good deal to be said both for formal and informal gardens, and one may be as enchanting as the other.

Deciding on the Plan.—The site and its environment must determine the plan to be followed. When the plot is of restricted size, and its boundaries are well defined, even obtrusive, it is generally wise to plan on formal lines ; when the available land is spacious, and its boundaries extend beyond the view, then it may be laid out in informal fashion with advantage, though that will not prevent its possessing some formal features.

Building Skywards.—If the garden is flat, build it skywards ; disturb the monotony of its surface. By these simple means it gains immeasurably in interest. By well-placed pillars of wood or stone, by arches, an arbour, or a small pergola, it is possible to add not only to the gaiety of the garden but to its apparent size. The eye is led instinctively to raised masses of colour in the form of blossoming climbing plants, and one forgets or fails to realize that the garden is flat and contained within narrow boundaries.

If an endeavour is made so to arrange an arch or series of arches that any view beyond the garden is seen through the framework of leaves and flowers, the impression given is that the field or wood beyond is actually

part of the garden itself. The boundaries should be masked by ornamental or fruiting trees, or by climbing plants, so that glimpses of distant objects are obtained, thus carrying the vision beyond the actual confines of the garden.

Altering the Levels.—If a garden is so small and flat that the whole of it can be taken in at a glance, some such scheme of planting is imperative if it is to possess charm ; this quality lies not only in the things seen but in those imagined. If the whole garden is on the same level, throw up a bank of soil, build a low stone wall to retain it, and give access to the higher level by means of a small flight of steps. Build up a rockery and crown it with alpine flowers. Where there are little hills there will also be corresponding hollows, and both add immeasurably to the glamour of the garden. Put in a few tall-stemmed weeping standard Roses. Make a little paved garden, and let a sundial draped with Rose or Clematis mark its centre. If you make a hollow, transform it into a little water garden and bejewel its surface with Water Lilies ; crown the surrounding knolls with pygmy shrubs and at once you have a fairy woodland and a fairy pool.

The garden must be alive, peopled perhaps only by beings wrought of your own imagination, but nevertheless real to yourself. Let there be surprises, corners and little nooks of which the presence is unsuspected until they are reached. They give delight as the unexpected always does in a garden.

The Charm of Winding Walks.—Shall the walks be straight or winding ? In a small garden the principal walks should be straight, otherwise the area will be so cut up that the garden loses all sense of spaciousness. But there should be lesser winding walks that lead to

the various features of interest, to the Rose garden, the rockery, the Water Lily pool, and so on. Winding walks help greatly in garden planning, for it is possible to screen the corners with flowering and evergreen shrubs or climbing plants on trellises so that a sense of mystery prevails and anticipation is conjured up as to what lies beyond. Care should be taken that the winding walk curves gracefully ; a winding walk in a restricted space is often without symmetry, and if it wind ungracefully it is destructive of charm and repose.

If the reader contemplates transforming a straight walk into a winding one, let him see that it winds for a purpose. If, unfortunately, a brick wall has to be its objective, put up an arbour there or a garden seat embowered in Roses. A garden that is laid out in rectangles is generally painful to look on, but much may be done to improve it by softening the edges by means of rockery mounds of free-growing, trailing plants, by grouping here and there such tall, graceful plants as Pampas Grass, Flame Flower (*Tritoma*), and *Spiraea Aruncus* and flowering shrubs. A garden of such design is spoilt by over exposure, and it should be the planter's aim to conceal its bareness.

In a garden of winding walks, most of which is exposed to view, tall trees and shrubs should be grouped here and there so that only glimpses of the walks would be seen. It is wonderful what an incentive to exploration lies in the glimpse of a disappearing walk.

Often an improvement can be effected in a flat garden by throwing up a terrace near the house. If the garden is small and expense is a consideration, the terrace need not be very high, but it has the merit of giving a fresh level and a new outlook. A terrace provides one with an opportunity of making a few steps and a wall that



The King of Climbing Plants—the Japanese Wistaria multijuga.

may be of use in several delightful ways. Providing there is a fair depth of soil, there should be no difficulty in growing such free blooming plants as Aubrietia, Snap-dragon, Wallflower, Evergreen Candytuft and Saxifrage. Or some of the slender-stemmed rambler Roses might be planted at the top of the wall ; they will fall over, wreathing it with graceful leafy branches and, in due season, with glorious blossom.

A garden is often spoilt by the fantastic shape of its flower beds, and the remedy is obvious. Flowers never look better than in beds of simple shape.

If the walk must be straight cover it with a series of arches, separated from each other by a few yards, so that the sunshine can get through. At the end of it put up a square-meshed trellis or treillage, so that the view to the end is obscured and a sense of wonderment arises as to what lies there. Above all, ensure that there be no disappointment when the end of the walk is reached. Let there be a feature of interest there, whether it be a flower bed of flaming colour, a miniature Rose garden, a fountain pool, or even but a seat among the flowers ; let there be something so that it shall not seem as though the journey has been made in vain.

The Old-World Atmosphere.—It is the fashion to attempt to endow the garden with an old-world charm. This is most easily accomplished by the right use of stone or brick, especially in the making of paths. A gravel path between borders of brilliant colour has not the appeal of a path paved with brick or stone, and on which the flowers trespass like a rivulet of blossom overflowing its banks.

How fascinating is a little formal garden paved with stone between which some of the loveliest flowers of spring and summer are set ! Paved paths are of far greater

value in a garden than those of gravel, not only because of their charm, but because they are economical and enduring. If laid on sifted ashes, sifted soil or sand, to the depth of an inch or two, the stones or bricks soon settle firmly and last for generations, while they afford a dry footing at all times of the year. Their crevices are beloved of self-sown seedlings which spring up there in profusion ; Forget-me-nots, Foxgloves, Pansies, and others soon find a home there, and if they become too numerous they are easily transplanted elsewhere.

How to Level Ground.—One of the points of importance in making a garden is levelling the site of the lawn. The task of levelling ground is full of interest. The first thing to do is to decide upon the level desired and to drive a peg into the soil so that its top represents the actual level aimed at. A beginning should be made at one end of the piece of land. Other pegs, at a distance of 6 feet from the first one, are then driven in the soil, and their levels are tested by means of a straightedge and a spirit-level. When the first row of pegs is level, digging should commence, the soil being so placed that it reaches to the tops of the pegs, or to a clearly defined spot at a uniform distance from the top. By continuing this practice from one end of the ground to the other, and taking care to bring the soil to the level of the pegs or to the marks on them, a true and level surface will be obtained.

Making Alterations.—A garden owes a good deal of its charm to the fact that it may often be altered but it can never be finished, and in this it differs from almost all other practical undertakings. One may build a house, and twenty years shall make no material difference to it, but if a garden is left alone what a change is effected, even by the passing of ten years, while the direct alterations that may be made during that period are illimitable.

It is unwise continually to make radical alterations, for no garden is really satisfying that is not allowed to grow old in its own way. But that is not to say that one may not turn a path, build a pergola, reform the flower beds, transplant an occasional tree, make a rockery here, a Water Lily pool somewhere else, and carry out a hundred and one other minor alterations that from time to time will occur to everyone who has the best interests of the garden at heart.

Where grave mistakes are made is in chopping down big trees that have taken generations to develop ; in grubbing up established hedges and planting others that take years to form a fence, and so on. These are not alterations ; they are revolutions, and are only to be permitted once or twice in the lifetime of a garden. It is not so much these as the minor changes that bring a fresh charm to the management of a garden.

On looking round the garden the thought may occur that a peep through a thick belt of trees showing perhaps a glimpse of distant hills, of heather land, or of house or church would be a great improvement, and benefit not only the garden but the trees which are possibly planted too close together. Shrubberies and tree groups are invariably planted thickly, often for the purpose of producing the desired effect in the shortest possible time. The owner may have every intention of cutting out some of them in a few years' time, but the passing seasons bring changes, and possibly another is in possession when the trees have grown up. The knowledge may not come to him that was in the mind of the planter and not caring to disturb the plantation he lets well alone.

CHAPTER II

WHY AMATEURS FAIL

IT is a good thing to fail sometimes, for from failures we learn valuable lessons. It is, nevertheless, disconcerting, and the average amateur is content with success and to leave experiments to others who can afford, for the sake of the knowledge they impart, to experience failure. People who take up gardening are like those who start to speculate ; they expect to have a garden of perpetual blossom by the mere effort of planting and sowing, as others expect to get rich quickly without having to pay for their experience.

One reason why amateurs fail is because they expect too much ; nevertheless, it is better to aim high, " for he who aimeth at the sky shoots higher much than he who means a tree." Beginners must realize that gardens come to perfect beauty slowly. You cannot plant Rose bushes in autumn and have them in their full glory the following summer ; it is necessary to wait two or three years for that consummation. Neither may you plant a fruit tree in November and gather a full crop the following autumn. After all, Nature takes her time in bringing her products to perfection, and the gardener, who is her servant and not her master, must, as Nature does, bide his time. " Everything comes to him who waits " is a proverb the impatient gardener—and all beginners are impatient—should take to heart.

But if Nature compels us to wait for the full revelation of her charm and beauty, she beguiles the passing time

seductively, for the months of waiting are one long dream of hope and expectant delight, and ever the goal is in front ; however glorious the garden may be this year, in our mind's eye it will be more exquisite still the year following. In such a way does the garden entwine itself in our affections ; gradually but irresistibly we realize the delight of tending tiny plants, and watching their development, marking their progress from small patches into glorious clumps until they transform the face of the garden.

So the time passes without our realizing it, and while we are waiting for the garden to come to full fruition, we come to know and to love the flowering plants, the fruiting trees, and even the straight, evenly spaced rows of commonplace vegetables. There is no need to despair or to be disconsolate because the garden progresses slowly towards the ideal we have set ourselves to attain. Should we value it so greatly were it otherwise ?

Another reason why amateurs fail is because they do not dig deeply enough. Digging is associated in the mind of the non-manual worker with really hard work, and he is therefore inclined to fight shy of it ; he contents himself with digging the ground "one spit deep" ; in other words, just as deeply as the spade is pushed in. But digging has its delights if it is practised correctly and pursued in the right spirit ; to him whose mind is properly attuned it is, in fact, a delightful occupation. He must first of all realize that the more deeply he digs the taller and finer will be the flower spikes, and if he digs with the desire to rival his neighbours and with a realization of the glorious display that will follow as a result of his efforts, he will find that not only is digging good exercise but it has an unexpected fascination. It promotes a love for the smell of the soil ; it brings the

gardener in close contact with Mother Earth, the source of all the beauty and charm of gardens.

In time he will become so proficient that by merely taking up a handful of soil he will be able to tell whether or not it is in "good heart" and capable of producing the flowers or fruits he desires. The accomplished gardener knows every square yard of his garden soil so intimately that he can give it exactly the treatment it needs, for has he not had his spade in every bit of it? Such knowledge is profitable, for it helps largely in determining the scheme of planting and in placing plants in the positions in which they are most likely to succeed.

Imagination plays a large part in exaggerating or in minimizing apparent difficulties. To dig across a wide plot is seemingly a far more laborious task than digging across a narrow one; it is wise, therefore, to divide the plot longitudinally and first to dig one half before the other is attempted.

Amateurs fail because they do things at the wrong time. Since trees and plants come to maturity slowly, it is always worth while "saving a season" by planting in autumn instead of deferring the work until spring. How often the appearance of a group of plants is spoilt by lack of timely attention to the prosaic tasks of staking and tying! In fact, the successful gardener is he who attends to small details just when they need attention; the big things may safely be left to the passage of Time and to Nature herself, two influences that never fail, providing the gardener attends to his obvious duties.

Many people fail owing to the lack of a little common sense and observation. As a rule, those plants, bulbs, or trees that have been in the soil the longest provide the best flower display. Nature does not make up for lost time.

CHAPTER III

DOING THE RIGHT THING AT THE RIGHT TIME

No dictum contains a greater truth than Mr. Alfred Austin's oft-quoted lines, "Successful gardening lies in doing the right thing at the right time." Many still do the right thing at the wrong time, while, more deplorable still, some even do the wrong thing at the wrong time. I confess to being at least eligible for inclusion in the first category. And how annoying it is to be reminded of one's shortcomings just when it is too late to remedy them !

For instance, in a gardening paper in November one may read that "Roman Hyacinths potted up as advised some weeks ago should now be brought into the warm greenhouse where they will soon come into bloom." Supposing one did not pot the bulbs when advised to do so, how irritating to be reminded of the fact some six or eight weeks afterwards, and how jealous one feels of those superior persons who did !

Procrastination is a common failing of amateur gardeners ; that, together with ignorance of the proper time to perform important gardening tasks, is responsible for many failures. It stands to reason that a plant cannot make up for time lost by the gardener. That is a golden truth, and one that is often brought home to those who neglect its teaching.

There is no doubt that a good deal of ignorance prevails among amateurs concerning the correct time to put in various trees, shrubs and plants. I remember

receiving an article from an amateur who filled several pages of paper in the endeavour to prove that it was better to plant Roses in spring than in autumn. Probably there are as many Roses planted in spring as in autumn, which may account for the numerous failures that result. Perhaps the wish is father to the deed. I myself would like to believe that a bright day in March or April, when the sun is shining, the birds are singing, and the Daffodils dancing merrily in the breeze, is the best of all times for planting Roses and fruit trees.

The Correct Planting Season.—Many amateurs are needlessly puzzled concerning the correct season for planting the trees, shrubs, and flowering plants they grow. I say "needlessly" because nearly all of them should be planted during a certain and well-defined period which extends from the middle of October to the end of March or early April. During that time all leaf-losing trees and shrubs, including fruit trees and Roses, and all hardy herbaceous border plants, with the exception of those referred to separately in this chapter, may be planted. Instruction could not be plainer. It then remains but to choose the day or days when the weather is mild and when the soil is sufficiently dry, yet sufficiently moist, to be easily and pleasantly "worked." Such conditions occur chiefly during the autumn months, from the middle of October until the middle of December, and it is wise, therefore, to have all planting carried out then rather than later in the period referred to above. As the winter advances the ground becomes sodden if it is of a heavy or clayey character, and frost is more frequent, consequently planting cannot be carried out so expeditiously or so conveniently; neither is it advisable to put in trees and plants when the ground is very wet, for they cannot make progress. If trees and plants are received when



Flowers growing in Steps and Paved Path. Among them are Cerastium, Pinks, Thrift and Snapdragon.

the state of the ground and the weather render planting inadvisable, a small trench with a sloping "back" should be taken out and the trees and plants laid in it; if the roots are covered with soil trodden down lightly, they will take no harm and will be available when an opportunity occurs of planting them.

It is a great advantage to have the ground prepared two or three weeks in advance of planting, for it then settles down to something like its normal level, and there is nothing to do beyond taking out holes of the required size. If, however, the ground is not dug until the trees or plants are put in, the work of planting takes longer, and it is somewhat difficult to determine the correct depth at which to plant because the freshly disturbed soil is sure to settle at a lower level.

Details of Importance.—The chief details to observe in the actual planting are to take out a hole that will allow the roots to be spread out without being cramped, to make the soil firm about the roots and especially below them, to put in any necessary support before the tree is planted, and to plant at the correct depth.

How Deep to Plant.—Now what is the correct depth? Naturally that must vary with the different trees and plants concerned. Hardy herbaceous plants should be put at such a depth that the tops or crowns are just below the surface; to ensure their remaining in that position the soil beneath them must be made firm. Typical kinds that come in this category are Delphinium, Lupin, Phlox, and Monkshood.

A herbaceous perennial is one of which the stems are of annual duration only; they start to grow afresh in spring and die down every autumn, the rootstock being perennial. Some plants commonly used in the hardy flower border are perennial, but the growth above ground

is not herbaceous but evergreen. Familiar kinds are Flag Iris, Heuchera or Alum Root, Geum, Carnation, and Pink. It is obvious that these cannot be planted in the same way as those of which only a rootstock is to be seen in winter ; they should be put at such a depth that the lowest leaves rest on the soil.

Will the time ever come when amateurs will plant their hardy, leaf-losing trees and shrubs and hardy border plants in November, and so ensure satisfactory results the following summer ? Or will they continue to wait until spring, when many of the best plants are sold ? How the spring sunshine searches out the weak spots in the garden ! The shoots of spring-planted Roses, that looked plump enough in the dull days, shrink and shrivel and die back until there is little of them left. On the contrary, the shoots of autumn planted Roses start into growth from tip to base, only waiting to be cut back by the pruner's knife to grow more strongly than ever. There are exceptions to the rule of November planting, but they are comparatively few. Since those that conform to the rule need no comment, let us consider some of the exceptions.

Planting Choice Evergreens.—Dealing first with trees, the exceptions are the Conifers and other choice evergreens such as Holly, Osmanthus, Box, Escallonia, Yew, Choisya, Berberis, and so on. It is commonly agreed that the best time to plant evergreens is in September or April. Some kinds are less difficult to transplant than others, and Rhododendron, Holly, and other common kinds are often put in during early autumn and winter without harm ; but as there is a greater risk in doing the work then it is just as well to move them when they are least likely to fail. ¶ ¶ ¶

In planting in September and April—especially in

April—one must take precautions, particularly if warm, dry weather should follow. It is most important that the roots and leaves of recently planted evergreens be kept moist ; otherwise they are likely to fail. They should be well watered as soon as planting is completed, and if the weather sets in hot and dry they should be syringed or sprayed with water every evening while those conditions continue, care being taken also to moisten the soil thoroughly when necessary. Newly planted evergreens pay for protection from strong winds ; this may be afforded by a screen of Archangel mats on the windy side.

A good general rule to follow to ensure planting trees and shrubs at the correct depth is to be guided by the soil mark on the stem, showing how deep they were in the nursery. It may be said that the uppermost roots should not be covered by more than 2 or 3 inches of soil. In planting bush or dwarf Roses, which are usually budded on another stock, care must be taken to have the point of junction between stock and scion, usually denoted by an enlargement, just beneath the soil. Standard Roses are often planted too deeply. The uppermost roots ought not to be covered by more than 2 or 3 inches of soil. Many people plant them deeply, apparently with the object of making them firm in the ground ; that, however, should be done by means of a stout wooden stake to each tree, thrust in the soil before the roots are covered.

Among hardy border plants that are planted in spring rather than in autumn there are Japanese Stonecrop (*Sedum spectabile*), Phlox, Michaelmas Daisy, Scabious, Japanese Anemone (*Anemone japonica*), Border Chrysanthemum, Gaillardia, and Pyrethrum. It is not true to say that they will not thrive if planted in autumn, but there are good reasons for deferring the work until spring,

especially on heavy ground ; the Scabious, Pyrethrum, Anemone, Phlox, and Gaillardia are likely to decay ; the others are late flowering, and spring planting is convenient. Border Carnations should be planted in September or early October and Pinks in September. Rockery plants are best put in in September or in spring.

The Madonna Lily (*Lilium candidum*) ought to be planted (or transplanted if the bulbs have to be moved) in August, for it has to form a tuft of leaves after the stems die down and before winter sets in.

September and October are the months for Daffodil planting for garden display, though if one is an enthusiast in Daffodils, and wishes to exhibit at the Daffodil shows that are held in different parts of the country, one must plant the bulbs in July and August. If a few bulbs dug up in August are examined, they will be found to have fresh roots already. Naturally the exhibitor cannot afford to take risks, so he ensures the bulbs as long a season of growth as it is possible to give them. But we cannot all be so keen and plant Daffodils in July.

August and September are the best months for planting all the small early flowering bulbs, such as Snowdrop, Winter Aconite, Crocus, Glory of the Snow, Scilla, the lovely little *Iris reticulata*, *Iris persica*, *Iris Danfordiae*, and other early flowering bulbs.

Early (April flowering) Tulips ought to be in the ground by the middle of October, while May flowering Tulips are well suited by November planting.

Those having a greenhouse and wishing for Christmas blossom should pot the bulbs of Roman Hyacinths and Paper White Narcissi in August or early September. That also is the time to pot bulbs of the early Tulips (the Duc Van Thol varieties), that may be had in bloom at the end of the year.

Montbretias are usually planted in March, Gladioli in March or early April, Dahlias and other half-hardy summer flowers in May or early June, Sweet Williams, Canterbury Bells and other hardy biennials in October, choice evergreen trees and shrubs in September or in April.

Advice on Digging.—The only sure foundation for a successful garden of flowers, fruits, and vegetables is deep digging; it may be said with truth that the more deeply one digs the taller and more vigorous will grow the plants, and the more satisfactory will they prove to be. There is a right way and a wrong way even of digging; those who do not know how to handle the spade find it laborious work, while others who have mastered the problem can dig for hours without experiencing undue fatigue. When he turns over a spadeful of soil the inexperienced worker literally "puts his back into it," whereas he would achieve the same purpose and with infinitely less exertion if he were merely, with a flick of the wrists, to turn the spade and let the soil fall down into its appointed place.

How Ground is Trenched.—The most elaborate form of digging is trenching; when this is carried out the soil is moved to the depth of 30 inches or so; in other words, three times the depth of the spade. Too much praise can scarcely be given to those who are prepared to trench their land; they will certainly obtain the very finest results; but trenching is slow and heavy work, and really is not to be recommended to those who have to do their own gardening. The process known as half-trenching—in which the soil is disturbed two spade-depths only—is sufficient for ordinary purposes, and by this means excellent results are obtained. It is astonishing how susceptible to impressions the average person

is ; if, for example, he starts to dig a wide piece of ground —say 10 yards in width—he will find it a seemingly endless task, and will feel like giving it up in despair long before it is finished.

If, however, he were to put a line down the middle, thus making two plots each 5 yards wide, and were to dig them separately, the task would not seem so laborious.

Beginning at one end of half the plot, the soil there is taken out to the depth of the spade and placed across the same end of the other half. The trench thus opened is then dug over and manure, leaf mould, or garden refuse is mixed in ; the adjoining top soil is then turned over into the open trench, which is thus filled, and a second trench is opened. This is treated in the same way, and so the work goes on until the end of the first half is reached. The soil from the opposite end of the second half of the plot is used to fill the remaining open trench at the end of the first half, and the last trench of all is filled with the soil first taken out.

CHAPTER IV

PRUNING PROBLEMS

OF numerous problems with which the amateur gardener is confronted from time to time, pruning seems to cause chief anxiety. But it really seems more complex than it is. That may be difficult of belief, especially after reading a book on the subject in which the reader has become hopelessly entangled mentally in the descriptions of side shoots, laterals, sublaterals, last year's wood, this year's wood, next year's wood, spurs, and all the rest of the terms with which the writer has bewildered him.

The easiest way to come to an understanding of the matter is by first classifying the subjects into fruit trees, flowering shrubs, evergreen shrubs, fruit bushes, hardy plants, greenhouse plants, and climbers. Now most of these bear their fruits or flowers either on the shoots or branches that grew during the previous year or on those yet to develop. Thus the first essential to successful pruning is to ascertain to which class the tree, shrub, or plant belongs. Once that is determined the other details will soon be mastered.

Let us, for the sake of example, take the Raspberry, a fruit that is grown in every garden. The most perfunctory examination of the Raspberry canes in summer will show that the flowers and subsequently the fruits are produced by short shoots or growths that develop from the buds on those stems that grew during the previous year. Thus we find that pruning is carried out in autumn ; then the canes that have borne fruit are cut

out and the fresh ones that have sprung up are left alone. The Peach and Nectarine, the Morello Cherry, and the Black Currant also bear their best fruits on the branches that were formed in the previous summer, and they are pruned in the same way.

Ornamental flowering shrubs that come under the same category are Winter Jessamine (*Jasminum nudiflorum*), Forsythia or Golden Bell, Ribes or Flowering Currant, *Diervilla* (*Weigela*) or Bush Honeysuckle, *Deutzia*, and Mock Orange (*Philadelphus*) ; they must not be pruned until the flowering season is past. Immediately the blossom has faded the old branches should be cut out so that fresh ones may grow that will bloom the following year. The Rambling Roses are treated in just the same way so far as pruning is concerned.

Now if we take note of the growth and flowering of the dwarf or bush Roses, we shall see that it is upon the fresh shoots, those of the current year, that the flowers are borne. Thus we prune in spring so that the fresh shoots shall be as vigorous as possible, for the certain effect of pruning or cutting back a branch is to force the development of other and more numerous shoots, the vigour of which will depend on their number. Among ornamental flowering shrubs that are pruned in spring may be mentioned those kinds of *Ceanothus* that bloom in late summer, the St. John's Worts (*Hypericum calycinum* and others), *Hydrangea paniculata*, and the popular purple flowered *Buddleia paniculata* which is such a favourite with butterflies and bees.

Apple, Pear, Plum, and Sweet Cherries bear fruits chiefly on spurs which may best be described as short, stunted shoots which form as the result of continued pruning, and bear blossom buds. These form gradually as the result of annually shortening the side or



A Colour Scheme in White and Silver--*Yucca filamentosa* and
Cineraria maritima.

secondary shoots on the main branches. Pruning both in summer and in winter is necessary. In summer the side shoots are shortened to six buds or so from where they started to grow in spring, and in winter they are still further shortened to two buds. The Wistaria flowers freely when pruned in this way.

The only pruning required by most evergreens is such as is necessary to keep them shapely ; that is best carried out in April and, for the sake of keeping them neat during the winter months, in August. It is a mistake to clip evergreens with shears, other than those shrubs that are grown as hedges or have to be kept to certain required shapes. It is better to thin out the branches ; that is, to cut out a few old ones that may spoil the symmetry of the bush, or prevent the development of the younger branches. Evergreens of which the leaves have been severed with shears are most unsightly.

CHAPTER V

GARDEN PATHS

THE paths are such a conspicuous part of the garden that one is forced to consider them carefully. Nothing so soon mars the charm of a garden as an untidy, ill-made, or ill-conceived path or walk. Whether the paths shall be straight or winding must depend on the views of the garden designer, and they in turn must be governed by the extent of the ground and the general plan of the beds and borders. Generally, it may be said that a path should reach its objective as simply and as naturally as possible, without tortuous turns and without unnecessary winding.

If a walk winds through the garden it ought not to be visible from end to end, otherwise most of its *raison d'être* is gone and it remains rather ludicrous. But if, when it winds, it is lost to view behind a trellis covered with climbing plants or a group of shrubs, it may be presumed that it had to wind to get round the obstacle, which, again, may be presumed to have been there before the walk was made. When a walk wriggles throughout its full length, and the grass margin wriggles with it, the whole of it being exposed to view, it is palpably bad design, because so unnecessary.

Avoid Blind Alleys.—There should be no blind alleys in a garden. Let each walk have a definite mission ; let it lead to some object of interest, whether it be a garden seat, arbour, or flower bed, something that seems to have made it worth while. It is not the purpose of walks to lead aimlessly through the garden, winding here and

winding there, but to lead definitely from one place to another.

What kind of a path shall we have? It may be of gravel, of grass, or paved with stone or brick. In out of the way parts of the garden—as, for example, among the fruit and vegetable quarters—ash paths are quite serviceable. The commonest paths of all are those of gravel, but it is very doubtful if they are the most economical except where they have to cover a considerable extent of ground, when the use of paving would be out of the question owing to the expense involved. For small gardens and for the formal parts of large gardens the path of brick or stone is, I think, to be preferred to gravel.

The gravel has to be renewed every two or three years if it is to remain fresh and attractive; its construction is expensive, for it means excavating and putting in a good foundation of drainage; badly made gravel paths are a source of discomfort and annoyance; they become very wet during rainy weather, and the gravel is loose in dry weather. Further, they need a good deal of attention in matters of weeding and rolling.

All details considered, the paved path is cheaper in the end. Its first cost is also the last. It is true that if stone is used it is expensive, especially if it has to be brought some distance, but it is easily laid and once in position it lasts a lifetime. Bricks are cheaper, and if the right kind—a hard brick of grey or reddish shade—is chosen, they make quite an attractive garden path.

In laying a brick path it is possible to form various designs, but probably it never looks better than when the bricks are laid longitudinally down the path; such an arrangement increases its apparent length; conversely, when the bricks are arranged with their greatest length

across the path the effect is to make the latter appear shorter than it is.

Laying a Paved Path.—Both stone and brick paths need to be laid with great care, otherwise the surface will be uneven and may be dangerous. The secret of obtaining a uniformly level surface is to place the stones or bricks on a good depth of fine material in which they can be well embedded. For this purpose sifted ashes, sand, or sifted soil may be used. The foundation of the path should be excavated to the depth of about 6 inches, all large stones being removed ; this space is then filled with one of the materials named ; sifted ashes, which are probably most easily procured, are as good as anything. An even surface can be obtained if care is taken to test the level of each layer of stone or brick by means of a straight-edged piece of wood. It is important to see that the edges of stones or bricks are not higher than neighbouring ones ; if laid unevenly, they are liable to cause one to trip and fall.

The only way to avoid this is to have a good bed of loose material beneath in which they can be pressed down. It is worth while laying a stone or brick path with care, for once made it needs no attention beyond that required to keep down weeds. The paved path saves the expense of providing an edging, since none is needed ; but the path must be slightly above the level of the beds or borders which run alongside it, or soil will fall on it and render the work difficult of keeping it clean.

A paved path undoubtedly adds to the charm of the garden, for it associates delightfully with the flowers, toning the garishness of those that are perhaps too violent in colouring, creating a pleasing colour scheme with those of violet, mauve, purple, rose, or pink shades and a colour discord with none. Grey blue bricks are simi-

larly pleasing among the flowers, and red ones tone down when they have been exposed to the weather for a few months. Paved paths are especially appropriate in little formal gardens, whether these are planted with Roses, Carnations, free-growing border flowers, or annuals.

Making a Gravel Path.—A gravel path is made by excavating to the depth of 10 inches or so, putting in a layer of drainage, then coarse gravel, and finally fine gravel for the surface. It should be higher in the middle than at the sides, so that water may drain away freely. Gravel paths should be rolled frequently when moist for the purpose of helping the gravel to bind closely ; if this precaution is not observed they are certain to become loose on the surface and to be unpleasant to walk on.

The Path Edging.—One of those minor details which have a pronounced influence on the appearance of the garden is the kind of edging made use of for defining the limits of flower beds and borders. If a grass path runs alongside the flowers no further edging is needed ; care should be taken that the flowers are not allowed to encroach upon the grass, for wherever they trespass there will the grass be damaged and its beauty spoilt. Of all kinds of artificial edging there is none more pleasing than that of stone ; pieces of sandstone or limestone are best, while pieces of flint and granite are the most objectionable. If the former are chosen they provide a perfect setting for many low-growing creeping plants, such as yellow Alyssum, Evergreen Candytuft, creeping Thyme, Pinks, Thrift, and Saxifrages. If the path is of brick or stone and raised above the level of the border no edging is needed, and marginal flowers may be allowed to encroach freely.

CHAPTER VI

PLANTS THAT REMAIN GAY FOR A LONG TIME

MANY hardy flowering plants retain their beauty for a comparatively short time; others have a wonderfully long period of beauty if given good cultivation. It is difficult to decide between what may rightly be included under the heading of this chapter and some others that have a fairly long season of bloom. While not claiming for this list that it is exhaustive, it can at least be said that only those that remain in beauty for a long period are included, and that each one is of considerable decorative value. Many of them can be raised from seeds; even some of the perennials will bloom the same season if sown early.

Alyssum minimum.—This useful dwarf annual plant, if sown in a flower-pan of soil under glass at the end of March and treated as a half-hardy annual, will bloom for many months. The variety Little Dorrit is probably the best.

Agrostemma coronaria.—This effective hardy biennial should be sown in a cold frame in April and planted where it is to bloom, when large enough. It looks best when grouped in masses.

Antirrhinum.—Few other flowers have been so wonderfully improved during the last twenty years as regards habit of growth and diversity of colouring as the Snapdragon. Raised from seeds sown early in February in pans or boxes, set in a heated greenhouse or frame, fine plants are available by the middle of May, when they

are hardened off and planted in beds and borders, where they bloom uninterruptedly from July to October. The colours are so rich and varied that all tastes may be gratified.

Aquilegia.—These, too, have been greatly improved of late years, and few hardy perennial plants give the flower-lover more pleasure than a bed of the modern long-spurred hybrids. They are most effective when massed by themselves in a long, narrow border. The tints are very varied and pleasing if a good strain is cultivated.

Begonia.—Although a tender perennial, the tuberous-rooted Begonia is one of the most satisfactory and showy of all bedding plants, and has the inestimable virtue of thriving and blooming well, even in our wettest summers. The tubers, if treated fairly, last for a number of years, and take up practically no room under glass during the winter months. If seed be sown about the middle of January in warmth, the resulting plants will bloom in late summer and autumn.

Bocconia cordata.—This stately hardy plant only requires to be better known to be more widely cultivated. The flowers are not very showy, it is true, but both these and the foliage have an attraction for most people. Large clumps, when in bloom, have the appearance of rich sheaves of ripe corn.

Calendula officinalis.—The double forms of this common but attractive plant, the Pot Marigold, are very useful for large beds and, if treated as half-hardy annuals, bloom for a long period.

Chrysanthemum.—Both the true border Chrysanthemums and those usually called Marguerites (*Chrysanthemum maximum*) are certainly within the category of plants that retain their beauty for a long period. Both

sections contain numerous varieties, and every taste may be gratified.

Dianthus Hedgewigii.—These beautiful Chinese Pinks, if raised in a little warmth and, after being hardened off, are planted in good soil in a sunny position towards the end of May, will give a grand display for many months.

Dimorphotheca aurantiaca.—This South African beauty should not be sown before the middle of April ; it must be planted out in a very sunny spot early in June. The colour is glowing apricot, and is very attractive.

Epimedium.—None of the Epimedums are very showy when in bloom, although they invariably attract attention ; if only for their beautiful foliage they must be included in this list. Some of them are gloriously tinted in spring and autumn.

Erigeron.—There are now numerous varieties of *E. speciosus*, and all are beautiful. They are very decorative in the garden, and also greatly in demand for cutting.

Fuchsia.—Many of the tender varieties of this popular plant are admirably adapted for planting out of doors during the summer months, and bloom for quite a long time. The hardy Fuchsias are also very beautiful and last well.

Galega.—The newer varieties of this old-fashioned hardy plant are very attractive, and the plants remain decorative for many weeks.

Geum Mrs. Bradshaw.—This, the most popular and useful of the Geums, is always most satisfactory when fairly young plants are planted. It is so easily raised from seed that there is no excuse for keeping the plants after they are two or three years old. Sown in a box in spring, and planted out in the open border when large



The Herbaceous Border in a Sussex Garden. Conspicuous on the right is *Campanula lactiflora*.

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enough, they make fine strong plants before winter, and bloom freely in the following summer.

Hesperis matronalis.—All the Rockets are beautiful and desirable, but the finest of the whole family is the old Scotch Rocket (*H. matronalis alba flore pleno*). There is a purplish pink form, also well worthy a place in the choicest collections of hardy plants. This fine plant grows only 18 to 21 inches high, and must not be confounded with the tall French form, desirable as that also is. The Scotch Rocket is rather a difficult plant to manage, frequently dying off without any apparent cause. If cuttings can be procured these eventually make the finer plants, but quite good results can be had by division of the old plants immediately flowering is finished. Always transplant to fresh soil.

Heuchera.—The various sorts of Heuchera or Alum Root are desirable border plants, but probably the best, and certainly by far the freest bloomer, is *H. brizoides*. It is of a pleasing pinkish shade, and produces great numbers of long, graceful spikes which are well suited for decorative work, besides being wonderfully effective over a long period in the garden. This Heuchera is easily increased from cuttings inserted in a cold frame in autumn. Plant out in April and retain these young plants for four or five years. It is very effective when planted in a bed by itself, or it looks well near the front of the herbaceous border. The foliage is very distinct and beautiful.

Lobelia.—These showy dwarf plants may be had in bloom in the border for quite a long period if good plants are available for planting out at the beginning of June. One of the finest is Waverley Blue, a variety with bright blue flowers that remain fresh for many months ; this does not come true from seed.

Mimulus.—For planting in moist, shady spots this

Monkey Musk is most useful, and its quaintly spotted blossoms are greatly admired by most people. Easily raised from seeds.

Nemesia.—This, our finest dwarf annual, when properly treated, retains its beauty for quite a long time. The dwarf hybrid form lasts best, although not, perhaps, so brilliant in colour. It should not be sown before about the third week in March, and must not be exposed to a higher temperature than 55°, or the seeds will fail to germinate well.

Nepeta Mussinii.—This lovely mauve-flowered Catmint is most useful for many purposes in the garden, not the least valuable being its ability to thrive under deciduous trees. Easily increased from cuttings.

Pansy.—Few flowers appeal to a wider circle than the Pansy and its near relative the Viola. Planted in partial shade, in rich, rather moist soil, these plants will bloom from June till November if not permitted to seed.

Pentstemon.—Although usually classed as autumn flowers, the Pentstemons, if well grown, start to bloom in late summer and continue till hard frosts set in.

Polyanthus.—These grand spring flowers, if planted in partial shade, bloom for a long season. Best raised from seeds every three or four years.

Poppy.—If well thinned, the annual Poppies flower for quite a long time. Among the most desirable are the Shirley and *Papaver umbrosum*. Very fine, too, are the new Ryburgh Poppies. These begin to bloom in June and continue gay till frost comes. They transplant quite readily.

Roses.—The modern Rose has few equals among hardy plants for beauty of form, variety of colour, and long season of beauty. Especially is this so with the Hybrid Teas. With good cultivation and judicious choice of

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varieties, a display lasting about five months can be obtained from the Roses alone.

Sweet Peas.—These are the finest of all annual flowers ; they can, by good cultivation, be made to produce an abundance of lovely flowers from June till October. The secure this the seeds should be sown, in pots or boxes, in January or early in February, the seedlings being planted out in April.

Other plants that remain in bloom for a long time are *Phlox Drummondii*, *Sidalcea Listeri*, East Lothian Stocks (especially if sown in July, wintered in a cold frame, and planted out in April), and *Viola*.

CHAPTER VII

PLANTS THAT ARE BEST LEFT ALONE

SOME hardy plants seem to suffer little from frequent transplanting, or even when frequently divided, but there are others that will not give satisfaction unless left alone. Among these are some of the most popular hardy herbaceous plants, and it is well to know which kinds dislike being disturbed. While it would be difficult, if not impossible, to enumerate every kind cultivated in our gardens that is best left alone, the list given below embraces the most important of them, and will be a guide to those who take delight in maintaining their hardy flower borders as full of bloom as possible.

There is considerable difficulty in deciding on exactly the best positions for these fastidious plants, and in small gardens especially it is out of the question to devote a flower bed or border to each. It is a good plan to plant a border with these kinds alone, and leave it undisturbed. I have had fair success in mixed borders by leaving the plants known to resent disturbance alone, when it became necessary to replant the others. It is, of course, very troublesome to do this satisfactorily, but in a garden where every foot of space has to be considered it is the best plan to adopt. Some kinds can very well be grouped at the corners or the ends of the herbaceous border, as I once saw a very fine lot of the lovely Japanese Anemone, this having been undisturbed for a generation at least. It is necessary to give special care to the preparation of the site where such plants are to be put in, and after-

wards to give fairly generous dressings of manure and fresh soil when necessary, mainly in the form of a mulch or surface covering. We may now proceed to consider the various plants in detail that come under the heading of this chapter.

Aconitum.—The Monkshoods are among the stately and most useful of our autumn-flowering plants, and although they transplant more readily than most of the others to be named, it is wise to leave them alone for a number of years, for it is only after having become thoroughly established and having grown into large clumps that they become really effective. There are now several fine sorts, the best probably being Carmichaeli ; Wilsoni, if less bright in colour, is also desirable for its very large individual blooms.

Anemone.—I have already referred in passing to *A. Japonica*, but would emphasize the importance of finding a site for this beautiful flowering plant, where it can be left alone indefinitely. Other Anemones best left undisturbed are *A. alpina* and its variety, *sulphurea*, which grow into handsome clumps that bloom profusely each spring ; *A. nemorosa* and its delightful varieties, *flore pleno*, and *Robinsoniana*, if left undisturbed, soon grow into vigorous spreading tufts that annually increase in beauty. *A. Pulsatilla* is another plant that is well worth leaving alone for a number of years.

Anthericum.—The best of the Anthericums is the pure white St. Bruno's Lily (*A. Liliastrum*), but quite desirable also is *A. Liliago* (St. Bernard's Lily). A miniature form of the first named, *A. Hookeri*, is a good yellow-flowered plant from New Zealand, which, if planted in deeply worked soil and the bulbs are not crowded together, will thrive for years without replanting, and, indeed, will be all the better for being undisturbed.

Aquilegia.—This is one of the most beautiful of all our hardy flowers, and few others more resent disturbance at the roots. Indeed, none of the fine new hybrid forms respond at all to division of the root, so the only suitable method of raising them is by seeds, sown in pans or boxes of light soil in spring, and planted in their permanent quarters when large enough. Treated thus, they will bloom splendidly for eight to ten years without much attention, whereas if lifted and divided they usually either die or become stunted and puny, with small flowers. A good strain of long-spurred hybrid Aquilegia is a joy in any garden.

Bocconia cordata.—The “Plume Poppy” is less often seen in our gardens than its great beauty demands. I suspect the main reason for this is that growers shift it about too much, and never give it a chance to show what it can really do. Leave it alone, and in a few years’ time it will attract more attention than many more showy plants.

Dicentra.—In some soils this popular old plant, popularly called Bleeding Heart, does not seem to resent disturbance very much, but in many gardens it has to be established for a year or two before it comes to perfection, so it is well to leave it alone as long as it continues to thrive. I have fine clumps planted seven years ago, and they get more handsome every year.

Erica.—Every member of the Heath family dislikes being disturbed, so it is well to group all these together, and then leave alone for an indefinite period; an occasional mulch or top-dressing with peaty material is all that is required, as a rule, to keep the plants in a healthy, vigorous condition.

Eryngium.—The lovely Sea-Hollies are very difficult indeed to get properly established, but when once they



A Rose Pergola between the Flower Borders.

do grow freely, the crops of bloom will increase in volume for many years if they remain undisturbed.

Fuchsia.—The hardy Fuchsias are very decorative subjects when they have grown into good clumps, and these can only be acquired by leaving the roots alone. Especially near the sea, *F. Riccartoni* and its varieties are of great value as hedge plants, as well as for forming clumps or isolated specimens on lawns. They may be cut hard back or merely trimmed, as best suits the purpose in view, and invariably give a good account of themselves each summer and autumn.

Genista.—The hardy Brooms are very beautiful when they have attained to fair size; they should always be planted, while very young, in the positions they are to occupy permanently. The branches may, on occasion, be well trimmed back, but the roots must remain undisturbed.

Gentiana acaulis.—Everyone loves this glorious low-growing Alpine, with its wonderful blue flowers, but very few succeed in growing it well. After it is once planted in loamy, stony soil it must be left alone.

Gypsophila paniculata.—Plant this in deeply worked soil in some corner where it can remain undisturbed. Seedlings usually thrive best.

Helianthemum.—The Sun Rose is at its best when hanging over large boulders in the rock garden. If planted when young and left to grow at will, in the course of a few years it forms a strikingly beautiful object while in bloom. There are several named varieties.

Helleborus.—Few other plants so keenly resent being lifted and replanted as the Christmas and Lenten Roses, so a site should be chosen where they are likely to be left unmolested for a generation. The early flowering sort—of which *H. altifolius* (*H. niger major*) is by far

the best—should be planted where it can be covered with a frame during the time it is in flower, so as to protect the blooms from inclement weather.

Lavender.—This popular herb in many old gardens flowers wonderfully every year, even if left alone for thirty years, while young plants thrive but poorly.

Lily-of-the-Valley.—Plant this in a shady spot and in rich soil, and nothing more is required for half a lifetime but an occasional winter mulch of decayed manure.

Morina longifolia.—This strikingly handsome, thistle-like plant is best raised from seeds and planted, while in a young state, where it is to remain and then left to itself.

Paeonia.—This plant is one of the most difficult in the garden to transplant. It does not, as a rule, die off after disturbance, but for several years makes miserable growth and refuses to bloom. All sections are alike in this respect.

Papaver orientale.—This gorgeous plant is never so fine as when found growing in a neglected herbaceous border. It greatly resents any attempt at division of the root, so leave it alone as long as possible.

Pyrethrum.—Though this may be transplanted, it will be found to thrive best when left undisturbed.

Rose.—While the modern Rose may be transplanted quite frequently, the old Moss Rose, the York and Lancaster, *Rosa spinosa*, and others of like growth, are never so fine as when left undisturbed for years.

The Snowdrop, the Trillium or Wood Lily, and the Verbascum are others that do not like being transplanted frequently.

CHAPTER VIII

THE NEW SHRUBBERY

FROM long maltreatment, by neglect and apathy on the part of generations of gardeners, the word "shrubbery" has come to have a dreadfully depressing significance. At its very mention visions are conjured up of huge bushes of Laurel and Privet, Aucuba and Yew, all of which, especially when massed together so that all beauty of form which they may have is lost, are calculated to plunge the most optimistic gardener into the depth of depression and to raise within him an everlasting distaste of shrubberies in general and his own especial one in particular.

There is nowadays no excuse for planting a monotonous shrubbery; there are so many shrubs attractive in various ways at the disposal of the planter that it is an easy matter to dispense with the dull ones. One may have a liking for a plant, and have the right gardening instinct, but it is difficult not to lose patience with a plant that is practically the same from one year's end to another, or that grows so slowly that one never realizes any difference in it. The greenery of some of the commoner shrubs is of an uninteresting kind. I must confess that the large, lustrous green leaves of the Laurel are quite handsome, and for flanking the shady sides of a carriage drive they are undeniably attractive when massed; but even this has not, I think, the charm, and certainly not the variety, which characterizes what I have called the new shrubbery.

Winter Flowering Shrubs.—Let us see what material there is at disposal for planting ; we must have shrubs that blossom in spring and in summer, some that are evergreen, others that lose their leaves, some that are distinguished by brilliant autumn colouring, others of which the leaves show attractive variegation in cream and green and gold. With such material on our palette it is hard if we cannot paint a pleasing canvas. Even in the height of winter we may have blossom, for does not the Laurustinus bloom for weeks together from December onwards ? This is an invaluable shrubbery plant ; it is evergreen, its leaves, if not handsome, are not commonplace, while its lovely pink buds and white flower bunches are attractive in themselves and valued highly because there is little else in bloom in the out of door garden.

Almost before the Laurustinus has lost the last of its blossom, the Chinese Witch Hazel (*Hamamelis mollis*), with fragrant golden-yellow flowers, and the Dogwood (*Cornus Mas*), its leafless stems wreathed in miniature yellow bloom, light up the winter shrubbery. Soon afterwards, though not shining quite so brightly, comes the Witch Hazel, with quaint, crinkled flowers in yellow and brown (*Hamamelis arborea*). The fragrant Winter Honeysuckle, with creamy-white blossom, more valued perhaps for its scent than for its attractiveness, is scarcely over before the Mezereon (*Daphne Mezereum*), its stiff stems covered with rose or with white, sweet-smelling blossoms, heralds the coming of spring. I must not forget to mention the yellow-blossomed winter Jasmine (*nudicaule*) and the Winter Sweet (*Chimonanthus fragrans*), with brown-purple fragrant flowers, both of which thrive better when planted against a fence or wall than as bushes in the shrubbery.

Spring Flowering Shrubs.—The closing days of March and the April showers and sunshine coax many favourites into bloom ; none is more welcome than the Star Magnolia (*stellata*), its dark shoots spangled with white star-like bloom. From the fading of these to the opening of the other Lily trees, as the Magnolias are called, is but a little while. The Yulan (*Magnolia conspicua*), with lovely large white blooms, and Magnolia Soulangiana, reddish without and pale within, of incomparable beauty, invest the shrubbery with fresh charm and fling open the gates of spring. Unleashed by gentle showers and refreshing dews, these exquisite spring blooming shrubs burst into blossom.

Flowering Shrubs of Summer.—Ornamental Plums and Cherries are the heralds of the flower hosts, but scarcely are they in full beauty when the Pear buds burst to blossom and the pink Crab clusters open. Lilac time comes with the coming of May and the Spiraeas and Mock Oranges, Guelder Roses and Bush Honeysuckles, Azaleas and Rhododendrons, Ceanothus and Laburnum, Hawthorn and Berberis and Broom are among those that add summer gaiety. In late summer the Daisy Bush (*Olearia Haastii*) becomes smothered in small white bloom, and the Cistus bushes spread fragrance, while for September are there not the lovely Rose Mallows (varieties of *Hibiscus syriacus*) to gladden the gardener's heart, and especially one quaintly christened Hamabo, with lovely single blooms in rose and white, after the fashion of single Hollyhocks ?

Those with a keen eye for colour incongruities should select the Rose Mallows with care, for some of them are real magenta. I think even in the small shrubbery one might include a plant of *Aralia spinosa*, placing it well towards the back of the border, for it is unlike anything

else one can grow in the shrubbery. It has giant leaves, deeply divided or incised, and plumes of creamy flowers that stand up well above the foliage. Then also for August and September there are the Tamarisks, most lovely of all being one called pentandra, with light green feathery foliage and rose-coloured blossom.

Berried and Autumn Tinted Shrubs.—Throughout the autumn the new shrubbery must rely chiefly upon berries, tinted and variegated leaves for its interest, and there is no lack of good things from which to choose. Shrubs with bright foliage well suited to the small shrubbery are found in the Siberian Dogwood (*Cornus alba sibirica*), with red stems and green, white-margined leaves; Spaeth's Dogwood (*Cornus alba Spaethii*), with green and yellow foliage; *Cornus Mas* variegata, green with cream edge, and the variegated Nut (*Corylus avellana foliis argenteis variegatis*), which seems to fruit just as well as the green-leaved one, and is well worth growing for its pretty foliage alone. Shrubs with beautiful berries are the Rocksprays (*Cotoneaster*), the Sea Buckthorn (*Hippophaë*), the Barberries, especially the newer forms, such as *Wilsonae*, *aggregata*, and others, and Pernettya.

Here and there in the shrubbery room should be left for a few clumps of some of the glorious hardy Lilies, such as *Tigrinum Fortunei*, *Henryi*, *pardalinum*, and *testaceum*.

CHAPTER IX

THE LAWN

THE possession of a trim and verdant lawn is the ambition of every garden lover, for it is generally realised that a patchy, worn, or ill-kept lawn may effectually mar an otherwise perfect garden and detract considerably from its charm. Conversely, a perfect lawn not only adds to the attractiveness of the groups of flowers, shrubs and trees, but in itself it is a beautiful and restful feature.

How to make a lawn and how to preserve it in good condition, so that it shall be like a patch of green velvet in the garden, is a problem that has puzzled many amateur gardeners. The lawn exercises such a fascination that many who are debarred from having a garden of flowers, owing to lack of space, yet manage to maintain a miniature lawn, for it is pleasing all the year round, restful to look upon in the hot summer days and warm and refreshing in winter when trees are leafless and the borders are bare.

There are those who believe it to be possible to maintain a lawn in perfect condition if it is constantly used for lawn tennis. They may be disabused at once, if the lawn is used for such a purpose constantly during the summer months it is bound to become worn, especially in those places chiefly used by the players, and the greatest care and skill cannot prevent it. Such a lawn can be renovated in autumn when play for the year has finished, but the following summer it will be in exactly

the same condition again if continually played on. Thus those who wish to have a lawn that is always delightful to look on, smooth and well kept and presenting a perfect sward, must not allow it to be used for such vigorous games as lawn tennis or badminton. On the other hand, the games of croquet and bowls do little if any damage.

Newly made lawns are more easily damaged than established ones, and it is a mistake to give them hard wear while the grass is still thin. A lawn laid with turf in September, or sown with grass seed in that month may be played on the following May, but it would be wiser not to use it until, say, the end of July ; during the months of May and June the grass grows quickly and forms a thick sward if not played on.

There are two ways of making a lawn, namely by laying turf and by sowing seed. The former provides a sward more quickly but it is far more costly than the latter method.

Preparing the Ground for a Lawn.—Before either turf is laid or seed is sown the ground must be thoroughly prepared ; that means digging the soil to the depth of 10 or 12 inches, removing the roots of perennial weeds and manuring the ground. If the land is full of weeds it is worth while turning it over in spring and allowing it to lie fallow during the summer so that all weeds may be destroyed. If the soil is hoed frequently, especially during hot dry weather, the weeds will be accounted for, though such deep rooting ones as dandelion, dock and buttercup should be taken out by hand. In August the land should be enriched by digging in some partly decayed farmyard manure and, finally by scattering bone-meal, two ounces to the square yard, four pounds per rod, on the surface.

If the ground is of a clayey nature it is a good plan to mix some sifted ashes with it during the summer months, for these are a help towards efficient drainage. On very wet ground it may be necessary to lay drain pipes ; they must lead into a main drain at one side or in the middle of the lawn, this sloping gradually to an outlet.

Towards the end of August the site should be made ready for sowing. This is accomplished by raking the soil several times to make it friable, and by rolling to get a firm level surface. These tasks should be carried out several times during a fortnight to ensure firm soil and a level and loose surface. When the ground is dug over in spring it should be levelled by means of pegs, a spirit level and a "straight edge" ; it will then be an easy matter to make it perfectly level by raking and rolling later on.

Sowing Grass Seed.—It is important to distribute it evenly, otherwise the grass will be thin in some parts and thick in others. The way to ensure an even distribution of seed is to mark off the site of the lawn into a number of squares, and to make as many packets of equal portions of seed as there are squares to sow. About two ounces of grass seed will be required to sow a square yard or approximately four pounds per rod ($30\frac{1}{4}$ square yards). Let the seed be scattered evenly across the ground in both directions so that the site is well covered. A calm day ought to be chosen for the work, for grass seed is very light and is easily blown about. It is a mistake to sow the seed during settled hot, dry weather for that may result in faulty germination. On the other hand, in cool showery weather the miniature blades of grass will show through in a few days. When the seed has been sown on the firm, rolled surface it

should be lightly raked in so that as much as possible of the seed may be covered. If then the ground is rolled in both directions the work will be finished except that means must be taken to keep the birds away for a few days, until, in fact, it is seen that the young grass has appeared.

If the lawn is one of considerable area the work of protecting the grass seed is a tedious one ; it may consist of strands of black cotton passed from stick to stick, netting may be used, or scarecrows, but probably the simplest way is to have a boy out very early in the morning with a rattle. It is quite early, soon after dawn, that the birds do most damage and they must be kept off or they will spoil the chances of a successful germination.

In the course of a fortnight or three weeks the new lawn may be rolled with a light roller in order to ensure a firm surface for that encourages the development of the grass. Soon afterwards the grass should be cut with a machine having the blades set high or, if possible, a scythe should be used.

The best time to sow lawn grass seed is in early September ; the cool dewy nights and the declining sunshine afford ideal conditions for its germination. Lawns may also be sown down in late March or early April, but September is preferable because the cooler weather of autumn allows the grass to become well established before winter and it will make rapid progress in spring. If dry weather is experienced in May it may have a disastrous effect on the young grass unless it can be watered freely, and even that is not so beneficial as rain.

Laying Turf.—Before turf is laid the ground must be prepared and cleared of weeds as already explained.

It is necessary to choose good turf free from weeds or it will cause endless trouble afterwards. Care must be taken to obtain a level surface by raking and rolling before the turf is put down. The end of one piece of turf should not be in line with that of the turf next to it, but should come in the middle ; thus if a start is made with a turf 18 inches long the turf adjoining should be only 9 inches long, the next 18 inches, and so on, the two different lengths alternating across the lawn. When all turf has been laid and beaten down with a wooden turf beater fine soil should be sprinkled over it and well brushed into the cracks. Watering with the hose will help to settle the turf and give it a start. When it is seen that fresh growth has begun, rolling and mowing must be practised regularly.

Rolling.—I am convinced that many lawns on heavy land are spoilt through being rolled too frequently. I believe it is a mistake to roll such lawns frequently, especially during the winter months when they are thoroughly moist, for the effect is to close up the soil particles and to make the surface almost impervious to air. The result is seen in a weak, unhealthy, and badly coloured sward. Some experts even go so far as to say that not only should a lawn on heavy ground not be rolled during the winter months but that it should be aerated, and for this purpose they use an appliance shaped something like a turf beater and having two inch spikes driven into the bottom. By the use of this, holes are made in the lawn and so the surface is loosened and aerated. Personally, having a lawn on heavy ground to deal with, I avoid rolling it in winter when it is thoroughly moist. On light land, rolling may be practised more frequently than is advisable^w on heavy land. During the spring and summer months, when

the surface begins to dry, the roller should be used after the grass has been mown, not only up and down the lawn but across it also.

Mowing.—A lawn must be mown regularly during the season, which may be said to extend from April until the end of October. During the height of summer, when the grass grows rapidly, it will be necessary to mow twice a week, otherwise the coarser grasses are liable to spread and smother the finer ones.

Mossy Lawns.—Moss is almost certain to appear on parts of the lawn that are shaded, or if the ground is ill drained or poor, and if these conditions continue it is difficult to get rid of the moss. However, an improvement may generally be effected by taking the following steps. The mossy parts should be thoroughly raked in order to remove as much of the moss as possible ; the bare parts are then lightly forked over and a dressing of fine soil is given ; with this a scattering of lime, wood ashes and decayed manure should be mixed. This soil mixture having been well raked into the ground, it is necessary to sow fresh seed. The best time to do this work is in September. The following March, sulphate of iron should be applied to the lawn at the rate of one ounce to three square yards. If parts of the lawn again become mossy they should be watered occasionally with a solution of water two gallons and sulphate of iron one ounce.

Lawn Sand.—This preparation is valued chiefly for destroying Daisies. One application is rarely sufficient if the Daisies are numerous. It should be applied in October and again in March. Its immediate effect is to disfigure the grass somewhat, but this soon recovers and grows more vigorously afterwards. Lawn sand may be made by mixing the following ingredients and



Fringed with Flag Irises—a Garden Walk in Early Summer.

applying the mixture at the rate of one ounce per square yard of lawn ; sulphate of iron $\frac{1}{2}$ lb., sulphate of ammonia $1\frac{1}{2}$ lb., sand 12 lbs.

Destroying Deep Rooting Weeds.—Lawn sand is of little or no avail in getting rid of dandelion, plaintain, buttercup and other vigorous weeds. The only satisfactory way is to dig them out with a weeding fork or to pierce the heart or centre of each one with a wooden skewer dipped in sulphuric acid, weed killer or other poison. If large bare patches are left the soil there should be forked up and a little grass seed sown.

Manures for the Lawn.—Unless the lawn is manured from time to time it is bound to deteriorate ; the grass sward will become thin and patchy. In January it is a good plan to apply a light dressing of yard manure ; much of the manurial value of this will have been washed in the ground by spring and what remains should then be swept off. In April one of the patent lawn fertilizers may be applied with advantage, or sulphate of ammonia, one ounce per square yard, will encourage the growth of the grasses. These measures may be adopted every year, with benefit. Every two or three years it is a good plan to topdress the lawn in February or early March with fine soil in which a scattering of bone-meal has been mixed. If the lawn is mown regularly, say twice a week in the height of summer, and once a week at other times, except of course in winter, a grass box may be dispensed with, for the fine cuttings do not show and they help to prevent the ground from drying out in hot weather.

CHAPTER X

THE HARDY FLOWER BORDER

IT is the aim of all garden lovers to have a successful herbaceous border, or, to put it more plainly, a border planted with herbaceous perennials—those plants having a lasting rootstock but whose growth above ground is of annual duration only. A border of this kind when skilfully planted is very beautiful during the summer months, but it needs to be carefully planned so that the colours of the flowers shall harmonize. Such a border as one may see in an up-to-date garden, where a staff of gardeners are employed, enchant^s the onlooker by its glowing masses of bloom ; he sees it perhaps two or three times during the summer and on each occasion it is brilliant with well-ordered blossom. There are no gaps, no flowers past their best, all is spick and span, and the visitor goes away with the firm impression that at last he has found the style of gardening which, with a minimum of labour, gives the greatest return.

Forthwith he makes plans and preparations for planting a mixed border the following autumn, sends an order to the nurseryman for a collection of the best perennials, probably works out a colour scheme, and plants accordingly. He confidently looks forward to such a display the following season as he has in mind, but alas ! he is foredoomed to disappointment.

A hardy flower border is not so easily made and maintained. Would that the inexperienced might peep behind the scenes in the garden that contains his ideal

flower border, and in the early morning when some of the gardener's best work is done. I am afraid he would be sadly disillusioned. He would see expert gardeners taking up or cutting down those plants that had given of their best, and replacing them with other plants in bud and bloom brought from the reserve borders. The visitor sees only the show gardens and forgets, or is ignorant of, that important reserve supply of plants that is grown behind the scenes.

The Problem of the Bulbs.—After having made a choice of suitable plants the amateur will find that the success of the hardy flower border depends chiefly on the way in which they are arranged. Both the flowers of spring and those of autumn present a little problem, those of spring particularly. Most of the early flowers are those of bulbs, and unfortunately their leaves turn yellow and die down just when the summer flowers are coming into full beauty. Yet they are so attractive that one cannot afford to be without them. Where then shall they be placed so that while their full beauty may be enjoyed they will not be a nuisance when the flowers are over and the leaves begin to fade? It is best, I think, to place them among the vigorous perennials; these grow quickly during early summer and their fresh shoots soon hide the decaying leaves of the Daffodils and other spring bulbs. Here and there, of course, room must be found for a few clumps towards the middle and the front of the border, but they should always be placed among plants that must be left undisturbed, of which a list is given in another chapter. If dealt with in this way, and the leaves are removed as they fade, spring flowering bulbs may be planted in the mixed flower border without causing much inconvenience. If they are planted in parts of the border that have

frequently to be dug up or forked over, they are very much in the way.

Another way out of the difficulty and to be recommended for the April flowering Tulips, which are not worth keeping for another year, is to throw away the bulbs when their flowering is over. When only small numbers are required that is an easy solution. Room may be found towards the front of the border for a few groups of Snowdrop, Scilla, Grape Hyacinth, and Fritillaria, for the leaves are small and they can be hidden quickly by sowing seeds of a few annuals near them.

Summer Flowering Bulbs.—There are certain summer flowering bulb plants that cannot be dispensed with. Chief among them are the Lilies, Gladioli and the Giant Summer Hyacinth (*Hyacinthus candicans*). The Lilies need a little shade and room can easily be found for a few clumps among some of the perennials. Some of those chiefly to be recommended are *Lilium Henryi*, pale orange, *Lilium speciosum* and its varieties which bloom in late summer and autumn, the Madonna Lily (*Lilium candidum*), the old Orange Lily (*Lilium croceum*), the Tiger Lily (*Lilium tigrinum*) and its varieties, and the new Regal Lily (*Lilium regale*). Room must certainly be found for a few clumps of Gladioli for they bloom in late July and August just when many other plants are losing their beauty. A few Dahlias are most useful for supplying colour in late summer and autumn ; preference should be given to the Single flowered, Collarette, Star and Charm Dahlias ; the last named are like low-growing, Paeony-flowered Dahlias ; they are ideal garden plants.

How to Group Hardy Flowers.—The amateur will probably find it more satisfactory to arrange the plants with a view to avoiding colour discords than to attempt

An Ideal Border of Hardy Flowers. Near the front are Nepeta Mussinii, Day Lily (Hemerocallis) and Summer Starwort (Erigeron). Farther back are Spirea Aruncus, Galega and Dahlias.



an elaborate colour scheme. If the latter plan is decided on, the richest colours such as orange, deep yellow, crimson and allied shades should be in the centre of the border, the colour scheme being so arranged that it works through light yellow, pale blue and rose to lavender and white at each end. But if reasonable care is taken to associate only those colours which are known to look well together, the result will be just as pleasing as when a set colour scheme is attempted.

Colours that Associate Pleasingly.—The following are some of the best colour combinations ; Pale rose and pale blue ; pale blue and pale yellow ; pale blue and white ; deep blue and deep yellow ; purple and orange ; crimson and cream ; mauve and pink ; mauve and white. Here and there among the really strong colours—the crimson, orange and rich yellow shades—it is wise to mingle a few white-flowered plants or those with leaves of grey, neutral tinting.

It is a mistake to separate plants of the same species or variety, and to dot them about throughout the border. If that is done the effect will be unsatisfactory and disappointing. All plants of the same sort should be set together in groups of three, five or seven, according to the size of the border. If an even rather than an odd number of plants is used it will be found more difficult to arrange groups of irregular shape and there will be a tendency for the border to have an artificial appearance. In arranging the groups of plants an effort should be made to let the border look as natural as possible and this can be done only by making the groups of informal shape. Here and there, taller plants must be placed towards the front of the border to break up any tendency to a uniform height, and those of lower growth should be allowed to run backwards to the middle of

the border. Thus the groups will be of varying shapes, some of them running from back to front, others in the opposite direction ; that arrangement will allow of some of the taller kinds being brought forward, thus avoiding any appearance of formal grouping.

Since it is not wise to rely altogether on hardy perennials for the flower border, the groups of these plants must not be crowded ; room must be left for sowing annuals and for planting out a few half hardy annuals, Border Chrysanthemums, Dahlias and the summer flowering bulbs which have been referred to. Some of the perennials are very vigorous and they spread considerably in the course of a year or two : if they are crowded they are not seen to full advantage.

As the appearance of the border in summer must depend to some extent on the flowering stems being properly supported, timely attention is needed to the work of staking and tying. It is important to attend to this matter early, before the stems are so far developed that they fall over and become crooked. The less staking done the better, for it must not be conspicuous. It usually suffices to place a few stakes round the plants and to connect these with several strands of string or to secure some of the strongest stems to the stakes by loops of string. Slender growing plants can be supported sufficiently by twiggy sticks placed among them ; this advice has particular reference to annuals. To render the sticks inconspicuous they should be painted green, and "raffiatape," which also is green, is to be recommended as a tying material.

The herbaceous border needs comparatively little attention once the plants are established. Most of the kinds are all the better if left undisturbed for several years. In autumn, when the old flowering stems are cut down,

the soil between the plants should be forked over and manured, and in spring a sprinkling of bonemeal will do good. Every three years basic slag may be applied with advantage in early autumn at the rate of 4 oz per square yard.

Flowers for the Summer Border.—Many of the best kinds of flowering plants for the herbaceous border will be found described in the lists on pages 150 to 169. The following form an excellent selection to begin with : Doronicum Harpur Crewe, yellow Daisy like flowers in spring, Oriental Poppy in several varieties, Lupin, Potentilla, Peach leaved Bellflower (*Campanula persicifolia*), Campanula Tewham Beauty, Campanula carpatica, Geum Mrs. Bradshaw, Salvia virgata nemorosa, Erigeron speciosus, Erigeron Quakeress, Delphinium, Thalictrum aquilegifolium, Phlox in variety, Achillea Perry's White, Heuchera, or Alum Root, Centranthus coccineus, Aconitum bicolor, Polemonium himalayanum, Nepeta Mussinii, Anemone *japonica*, Hollyhocks, Helenium Riverton Gem and Sunflowers.

So far as the autumn flowering plants are concerned, some of them must be regarded as indispensable. There must be a few Michaelmas Daisies, Coneflowers (*Rudbeckia*), Japanese Anemones (*Anemone japonica*), the Japanese Stonecrop (*Sedum spectabile*), The Monkshood (*Aconitum Wilsonii*) and Artemisia lactiflora, a tall plant with cream-white flowers. The taller ones must be placed somewhere towards the back of the border, care being taken to arrange them near those that bloom earlier in the season.

CHAPTER XI

ROCK GARDENING

EVEN those who have experienced the delights of hardy flower gardening and Rose growing, and have drunk deep of the pleasures they have to give, even they may have never dreamed of the fascination of rock gardening. It is such an intimate form of gardening ; each rocky mound and miniature precipice, each fairy valley and flower strewn crevasse and every stony slope become familiar, and the little trees, shrubs and flowers with which we furnish them gain such hold on our affections that we soon come to regard them as friends from whom it would be grievous to part.

There is not a garden in the land on which the sunshine falls where a rockery may not be made ; most of the alpines are flowers of the sunshine and, with some exceptions, they languish in the shade. The whole secret of success in the cultivation of alpine or mountain plants in lowland gardens is to provide them with perfect drainage and give them a sunny spot ; those conditions will ensure their thriving, and result in healthy, free blossoming plants.

Something more, however, is required in the making of a rock garden that shall represent faithfully a miniature mountain range filled with some of the choicest flower jewels that have their homes on the alpine heights. In the arrangement of the rocks or stones the planter will have to rely on his own taste and discrimination, and the way in which he exercises them will determine

the measure of his success. It is scarcely possible to plan out a rock garden as you would a series of Rose or flower beds ; nor is it necessary, for a rock garden may be built in so many different ways, any one of which is likely to be as pleasing as another. There, in fact, lies the charm of the rock garden ; everyone may build according to his own ideals providing he does not sin against certain well-defined rules which will be referred to later.

One may choose to make of his rock garden an alpine meadow, intersected by a shallow stream ; another may be content with a series of Lilliputian precipices and steep rocky slopes, while someone else may desire to combine the two. There is no limit to the ways in which a rock garden can be planned, and every flower lover may build according to his own desire. There is always a fascination about something which you yourself have built, and, as the building progresses, as the scheme is unfolded and is moulded according to the ideals you have in view, so will your pleasure increase. Just as a Rose tree you have grown from a cutting is invested with a far greater interest than those purchased, so, too, will the rock garden or rockery built under your own direction, if not with your own labour, prove a perennial delight. And when you have planted a collection of the flowers from the mountain heights of the world, and have tended them for a season or two, your cup of gardening happiness will be full : so far as the delights of flower growing are concerned you will feel that you have reached the Ultima Thule.

These miniature flowers with which the rock garden is planted are fascinating because they are the elfin children of the gardening world ; they are so small, so appealing in their tender beauty, that one feels

compelled to attend to their needs ; they seem so incapable of fending for themselves. Really it is not so, for they are an extremely hardy race and it is astonishing how well they respond to care and correct treatment. They blossom with a freedom that seems remarkable for such small plants ; many of them become so smothered in blossom that the leaves are hidden from view and one wonders how such scant leafage can support such a galaxy of bloom.

The reason is not far to seek ; though that part of the plant above ground may be small, it is possessed of a wonderful root system that goes deep and far in search of the moisture that is so essential to its well-being. Thus the way to grow rock plants to perfection is to provide them with deep and well-drained soil. Some are liable to perish in our comparatively mild and wet winters unless excessive moisture is able to run off the surface quickly.

Building the Rock Garden.—How shall we begin to make a rock garden which, in the course of a season or two, shall be a riot of bloom, its valleys running rivers of blossom, its rocks spangled with the brightest flower treasures of the high mountains of the world ? Before we build we must dig, unless the soil is light and naturally well drained ; that being so, we may begin to put in the rocks or stones at once. But on heavy ground it is necessary to excavate the site to the depth of a foot or so and to fill in with rough drainage consisting of broken bricks or stone. Such a foundation is essential on ill-drained land. The drainage having been covered with ordinary garden soil, with which some leaf-mould has been mixed, a suitable foundation will have been formed on which to place the rocks or stones.

Arranging the Stones.—In arranging these it is of

the first importance to make them firm, and to see that they are surrounded by soil ; the roots of rock plants go deeply in search of moisture. Let each stone slope back towards the bank of soil, then if the soil is pressed well round it, it will settle firmly and rain falling on it will run down into the soil of the rock garden and not away from it. Do not allow one stone to overhang another ; any plants beneath the overhanging stone are almost certain to perish, for they will suffer from dryness since no rain will reach the soil there. Do not place one rock or stone directly on another ; let there be a good layer of soil between them so that plants put in the interstices can root freely into it.

Always arrange each stone so that it rests on its broadest base, for that makes for steadiness and firmness. It is a mistake to place the stones on end. Sometimes a rock garden in which all the stones are placed on end is seen and it shows the utmost ignorance of the way in which the building should be done. The aim must be to make the rock garden appear as natural as possible ; it should give the impression of a natural outcrop of rock such as may be seen on a hillside in country districts. The rocks must not appear as though they had been placed on top of the ground. The secret of obtaining a natural looking rock garden is to make sure that the greater part of each rock or stone is covered with soil ; in no other way is it possible to avoid a rock garden of artificial appearance. Further, unless the greater part of each stone is beneath the soil it will not rest firmly, and plants cannot be expected to thrive if their roots are subject to disturbance occasioned by loose stones.

As the building progresses the owner will watch with intense delight the development of the ideal he

has pictured in his mind's eye. Possibly he will be disappointed with the appearance of the rock garden at first, but if he has endeavoured to plant simply and has built firmly, the rock garden cannot fail to give delight and satisfaction when in the course of a few months the plants have spread into wide, flower-spangled mounds, have veiled the rock faces with a mantle of green and grey, and have carpeted the slopes.

It is astonishing how quickly rock plants grow during the spring and early summer months if they are planted in deep and well-drained soil. Ordinary garden soil may be used for placing between the stones as the rockery is built up, but some leaf-mould, broken brick or mortar rubble and sand should be mixed with it freely. In such a compost many of the most beautiful rock plants will thrive, and further special soil can be given at the time of planting to those few that need it.

The best time to plant the rock garden is in September and in March and early April. Plants can, it is true, be put in at any time between those months or even in the summer, for almost all are grown in flower-pots and can therefore be planted without disturbing the roots very much, but there is less risk in planting during the months of September and April. As the rock plants grow most freely during the spring and early summer months, it is then that they are most liable to suffer from lack of moisture unless they are watered well in dry weather. It is not advisable to water during cold weather.

General Hints.—Rock plants need very little attention beyond watering and weeding, except that when the flowers have faded it is wise to cut back the shoots of some of the vigorous spreading kinds such as *Aubrieta*, *Alyssum*, *Arabis*, *Helianthemum*, *Iberis*, *Cerastium* and

Pinks ; this attention keeps the plants compact and prevents their becoming straggling, as otherwise they are apt to do. Many kinds, and especially those that are inclined to grow out of the soil, such as Auriculas and some of the Primulas, derive benefit from a top-dressing of soil and crushed brick or stone in early autumn ; the broken stone, which may with advantage be placed round all rock plants, has the effect of keeping the base of the plants dry during the winter months when the ground is often excessively wet, and so prevents their decaying.

A rock garden is really very easily managed and need occasion no anxiety to the amateur. Where he is liable to go wrong is in building a rockery of artificial appearance (though that may be avoided if the advice already given is borne in mind) and in choosing the wrong plants. It is wise to group them to some extent. For example, the Silvery Saxifrages should be planted on a rocky, mound to themselves, likewise the rock-loving Primulas and Pinks. Care, too, must be taken that the vigorous kinds are not so placed that they will encroach on choice plants of less spreading growth. Those that form low carpets of leaf or flower such as Aubrieta, Thyme, and Veronica rupestris, should be placed so that they may fall down the rock face. The lovely Rock Jasmines (*Androsace*) also thrive best when planted so that they can fall down the face of a rock. Those that love partial shade, such as most of the Bellflowers, Primulas and Mossy Saxifrages, should be placed where they are screened from the midday sun.

Raising Rock Plants.—Most rock plants can be propagated by means of seed sown as soon as it is ripe in late summer or in spring ; finely sifted soil must be used to fill the flower-pans or boxes, and these should

be placed in a frame. If kept moist and shaded the seeds will soon germinate. They must be transplanted at greater distances apart on a bed of soil in the frame or out of doors, and in autumn some of them will be large enough to plant permanently in the rock garden. Many kinds can be increased by means of cuttings taken off as soon as the flowering season is over. These, if inserted in sandy soil, covered with a handlight and kept moist and shaded, will form roots in three weeks or so. They must then be gradually hardened off by tilting the handlight for ventilation, and in due course should be potted singly in flower-pots, there to remain until well rooted, when they may be planted out.

The following are indispensable rock garden plants and are not difficult to grow :

Acaena (New Zealand Bur). A trailing plant that spreads quickly. The most attractive sort is *Acaena Buchanani*, which has pretty little grey leaves.

Aethionema (Persian Candytuft). Lovely and graceful plants of slender growth. Plant in gritty soil. Cut back slightly after the flowers are over. *Aethionema pulchellum*, with pink flowers, is one of the best.

Alyssum (Gold Dust). A favourite plant not only for the rock garden but for the front of the flower border. It needs well-drained soil or it will deteriorate, if it does not perish, in winter. *Alyssum saxatile*, with golden-yellow blossoms, is the showiest. *Alyssum spinosum*, having spiny, greyish leaves and white flowers, is suitable for planting in gritty soil among the rocks.

Androsace (Rock Jasmine). Two of the most useful of the Rock Jasmines are *Androsace carnea* and *A. sarmentosa*, both having rose coloured blooms on low growing plants. They need exceptionally well-drained gritty soil, and it is wise to place a piece of glass raised

a few inches from the ground over them in winter to keep off rain.

Antennaria (Mountain Everlasting). A creeping plant with grey leaves that makes an attractive carpet. It needs a well-drained place. *Antennaria dioica*, with rose coloured flowers, is one of the best kinds.

Arabis (Rock Cress). The finest sort is *Arabis albida flore pleno*, with large, double white flowers. It is a rampant grower and must be planted near the margin, away from choice plants. Cut back after flowering.

Arenaria (Sandwort). The loveliest is *Arenaria montana*, which bears fairly large white flowers; it is easily grown in sandy soil. Another beautiful little plant is *Arenaria balearica*, which should be planted at the foot of a half-shady rock, which it will cover with leaf tracery and tiny white blooms.

Aubrieta (Purple Rock Cress). Well known and beautiful rock plants. They are happiest in well-drained soil and there soon spread into large masses and become smothered with flowers in spring. They look best when planted to cover a rock or on a mound of soil. Cut back after flowering. Pritchard's A 1, Dr. Mules, Bridesmaid and Fire King are some of the best varieties.

Campanula (Bellflower). The most delightful Bell-flower for the beginner is *Campanula pusilla*, which is of low creeping growth and bears exquisite blue flowers like miniature bells; the variety Miss Willmott, of lighter blue colouring, is even more attractive. *Campanula muralis*, *C. gorganica hirsuta* and *C. Hostii* are others to plant.

Dianthus (Pink). Pinks should be planted freely in the rock garden for they offer no difficulty in sandy soil and soon spread into wide masses that make a glorious show in June, flooding the rock garden with

drifts of colour. The Cheddar Pink (*Dianthus caesius*) in its many varieties is one of the most useful, while those commonly grouped as rock Pinks, varieties of *Dianthus plumarius*, are also very attractive.

Dryas octopetala (Mountain Avens). This bears white, strawberry-like flowers and is very beautiful when established on a partially shaded slope in sandy loam with which a little peat has been mixed.

Erinus alpinus. This looks best when allowed to fill crevices between the rocks; it is of trailing growth and bears purplish-rose flowers.

Gentiana (Gentian). The beginner will do well to select very few Gentians, for most of them are capricious plants and difficult to manage. Perhaps the loveliest of all is *Gentiana acaulis*, which has trumpet shaped flowers of intense and brilliant blue. It is likely to do best in stony, loamy soil. In some gardens it grows almost as freely as the Primrose, while in others no skill is of avail. Perhaps the easiest of all is *Gentiana septemfida*, which reaches a height of 12 inches or so and has brilliant blue flowers. It needs moist, loamy soil.

Gypsophila (Cloud Flower). The trailing *Gypsophila repens* and its variety *rosea* are delightful and easily grown rockery flowers. Plant in sandy soil in such a place that they can trail over the rocks. They bear pink and deep rose pink flowers respectively.

Helianthemum (Sun Rose). This is a free growing little shrub that becomes smothered in Strawberry-like blooms of various colours in summer. They grow quickly and must be allowed plenty of room. One plant will fill a square yard in the course of a season or two. Cut back after flowering. There are many varieties.

Iberis (Perennial Candytuft). An evergreen plant that bears an abundance of white flowers in spring



The Flower Cascades of Alpine Plants. A Rock Garden on the edge of a Woodland.

and makes a charming display. Thrives in well-drained soil in any sunny place Cut back slightly after flowering. *Iberis sempervirens* is one of the best sorts.

Leontopodium (Edelweiss). There is no difficulty in growing the Edelweiss if it is planted in loamy, stony soil among the rocks in a sunny position. It is more curious than attractive, having grey leaves and grey, woolly flower heads.

Linum (Flax). That lovely blue Flax, *Linum narbonense*, should find a place on every rock garden. It is of slender, graceful growth and bears its exquisite blue flowers throughout many weeks It is happy in sandy soil.

Lithospermum (Gromwell). Apart from the Gentians perhaps the richest blue rock garden flower. It is not so easily grown as some of the others mentioned ; it requires a peaty soil, or peat and loam mixed, and the drainage must be good. *Lithospermum prostratum* is the kind to begin with.

Oxalis (Wood Sorrel). The loveliest of the Wood Sorrels for the rockery is *Oxalis enneaphylla*, native of the Falkland Islands ; it has silvery grey leaves and rose coloured flowers. It needs a partially shaded place and a soil with which sand, leaf-mould and a little peat have been mixed freely.

Phlox.—The dwarf spring flowering Phloxes are very beautiful and cannot be omitted even from a small collection. They develop into large masses which become smothered in bloom in April and May if planted in a slightly shaded place in well-drained soil of loam and leaf-mould. A few of the showiest are *Phlox subulata*, Vivid, and G. F. Wilson.

Primula (Primrose). These are conveniently divided into moisture-loving or bog Primulas and others which

need to be planted in sandy, loamy soil among the rocks. Those of the former class need moist, loamy soil in partial shade. Some of the chief kinds are *Primula japonica*, *denticulata*, *Littoniana* and *pulverulenta*, all handsome and with flowers of various colours. Of the rock *Primulas* mention should be made of *Primula Auricula*, of which there are many named varieties, *Clusiana*, *hirsuta*, *viscosa* and *marginata*; limestone should be mixed with the soil for the last named. *Primula frondosa* is one of the daintiest and most easily grown *Primulas* for the rock garden. It grows only some 6 inches high and bears rose coloured flowers. It is quite easily managed in sandy, loamy soil in a partially shaded place.

Ramondia (Pyrenean Primrose). This curious plant, which has rough, crinkled evergreen leaves and purple-blue flowers, must be planted in a shady rock crevice in such a way that its rosette of leaves is flat against the face of the rock.

Saxifraga (Saxifrage). So far as the beginner is concerned there are two chief classes of rock garden *Saxifrage*, the Mossy and the Silvery kinds. The Mossy *Saxifrages* form mounds or carpets of exquisite moss-like greenery which are attractive all the year round, and in spring and early summer they are spangled with flowers in white, rose or crimson. Those of compact growth are chiefly to be recommended, such as *hypnoides*, *muscoides*, and *Kingii*. Others worth growing are *Guildford Seedling*, *Wallacei* and *sanguinea superba*. They like partial shade and a fairly well-drained sandy loam. The silvery *Saxifrages* are distinguished by rosettes of silvery grey leaves, and in spring and early summer they produce dainty panicles of small flowers chiefly of white, pale rose or pale yellow; they are extremely graceful and attractive plants. They should

be planted in rock crevices in gritty well-drained soil, preferably in a sloping position so that moisture does not settle in the centres. A few of the most beautiful are *Saxifraga Aizoon* and its varieties *Balcana* and *flavescens*; *cochlearis*; *Hostii*; *lingulata lantoscana*.

Sedum (Stonecrop).—These are probably the easiest of all rock plants if one excepts the Houseleeks. *Sedum album* spreads quickly into a carpet of greenery and bears an abundance of white flowers. *S. Ewersii* has grey leaves and rose-purple flowers in July. *S. Kamtschaticum* has yellow flowers in late summer.

Sempervivum (Houseleek).—These curious plants will grow almost anywhere; it is only necessary to press the roots into a crevice with a little soil over them to give them a start. They will even flourish if planted in slight hollows on rocks if a little soil is placed over the roots. The common Houseleek (*Sempervivum tectorum*), the Cobweb Houseleek (*S. arachnoideum*) and *S. triste* are a few of the best to begin with.

Trillium (Wood Lily).—A plant having three leaves in a whorl on a stem several inches high and bearing at the top a beautiful white flower. *Trillium grandiflorum* is the finest. It needs peaty soil and a shady place.

Veronica (Speedwell).—One of the loveliest flowers of the rock garden is *Veronica rupestris*, a trailing evergreen that bears a profusion of little spikes of intense blue flowers; they are so abundant as almost to hide the leaves in summer. It is easily grown in well-drained soil.

Viola.—Perhaps the loveliest of all Violas for the rock garden is *V. gracilis*, the Grecian Viola, which has purple blooms. It is happy in partial shade in well-drained though fairly moist soil.

CHAPTER XII

THE ALPINE BORDER

PROBABLY the best method of explaining how to make and plant such a border as this chapter deals with is to describe how several were laid down under my own supervision, these having been a great success and admired by numbers of people interested in gardening, most of whom had never previously seen anything of the kind.

These borders are 6 feet wide and 40 or 50 yards long. At one time they were filled with ordinary mixed herbaceous plants, and subsequently they were bedded with the usual summer half-hardy flowers. The necessity of saving labour led to the making of an Alpine border. The borders were really too narrow for the proper accommodation of herbaceous plants, so eventually we decided to experiment with dwarf hardy kinds, mainly Alpines, or at least such kinds as are usually found only in rockeries. While a few patches were gathered in from the front of the herbaceous border and the rockery, most of them were raised from seeds.

The ground was given a liberal dressing of leaf-mould and a little well-rotted stable manure was deeply dug in in winter and forked over and levelled before planting was begun. The next consideration was the manner in which the plants were to be arranged. Any formal design was ruled out, and we decided to make the various clumps quite informal in size and shape. The more varied in outline the better, while the blending or harmonizing of the colours had to be left pretty much to chance,

seeing that so many of the plants were raised from seeds.

Planting the Border.—All the plants secured by division of old plants were first put out, each clump being of different size and shape. This was done in March or early in April, but those raised from seeds were not then large enough, so the completion of the border was delayed till summer. While moderately close planting was practised, due consideration was given to the habit of growth of the various plants. In the first border, naturally, we made a few mistakes when choosing the different kinds, some failing to thrive, while a few others proved too rampant for a border of this kind.

The Best Kinds of Flowers to fill such dwarf borders are fairly numerous, but we determined to use only those that, while blooming for a fairly long period, would at the same time flower more or less together, so as to make a display of bright colours. We also decided that, if possible, the border should be at its best when little else would be in bloom. This, of course, greatly restricted the choice, but the general effect has been so good that we have no regrets in this connexion.

Alyssum saxatile compactum.—This dwarf form of *A. saxatile* is well adapted for the adornment of such a border, especially when allied with the double *Arabis* and purple *Aubrieta*. When raised from seed it is a little more robust, but this is no drawback. The foliage of the variegated variety looks well when surrounded by white mossy *Saxifrage*.

Arabis albida flore pleno.—Although somewhat rampant in growth, this beautiful white Stock-like flower cannot be left out. It thrives well under deciduous trees.

Arabis aubrietioides has pretty pink flowers that last long in beauty; the plant is of close, dwarf habit of

growth and admirably adapted for the front of such a border. *Arabis albida variegata* is another handsome variegated leaved plant. If put on rich soil it is liable to revert to the green-leaved form.

Arenaria montana.—Although somewhat inclined to overrun its neighbours, this pretty pure white flower is of great value among bright-coloured Aubrietias, Polyanthus, etc.

Aubrieta.—This is quite indispensable; it can be had in several distinct shades, while a packet of mixed seed gives endless satisfaction.

Campanula.—Several of the dwarf Bellflowers or Campanulas, such as *C. barbata*, *C. carpatica*, *C. muralis*, and *C. pusilla*, although they flower somewhat later than the others, are so showy that they cannot be dispensed with.

Cheiranthus Allionii.—This showy dwarf Siberian Wallflower, if surrounded by dark red Polyanthus, creates a very striking effect.

Dianthus integer.—This lovely little Pink cannot be omitted, its neat, tufted habit and charming white flowers being very much admired by all flower lovers.

Gentiana acaulis.—Where it is successful, this lovely blue flower must be included. It greatly dislikes being disturbed at the roots.

Helianthemum.—The Sun Roses are somewhat late in blooming for use in a spring border, but they succeed admirably, and are very bright and cheerful.

Myosotis.—Some of the Forget-me-nots are very useful for a border of this kind, one of the best being Barr's Alpine Blue. These, of course, must be renewed annually from seed.

Phlox.—The dwarf-growing Phloxes are all very desirable, but *P. subulata* and its varieties *alba*, G. F.



A Flayed Garden Path edged with Purple Rock Cress (*Aubrieta*)

Wilson and Perfection, are splendidly suited to our purpose.

Polyanthus.—These are a host in themselves, and may be planted in patches of one colour or mixed, if desired.

Primrose.—These may be had in several distinct colours, including blue, and while less showy than the Polyanthus, they are very useful.

Saponaria ocymoides splendens is a pretty free-flowering pink flower that makes a fine display, although rather later to bloom than is desirable in a spring border.

Saxifraga.—The mossy Saxifrage is one of the very best plants for the alpine border, the bright green mossy foliage being distinctly pleasing at all seasons, while the flowers in shades of red, pink, and cream, not to mention the whites, are most captivating. A packet of mixed seed is certain to give a fine effect.

Viola cornuta purpurea.—If the soil is not too rich this fine variety of the Horned Viola is well adapted to this form of gardening, as is the white variety. *Viola gracilis*, and its variety Purple Robe, are very beautiful indeed when planted in fair-sized clumps at the front of the border. They bloom for a long period.

How to Raise Seedlings.—Most of the plants above-mentioned may easily be raised from seeds. Some do not come true to type, but in a mixed border, such as has been described, this really matters very little. While the seeds may be sown at any time from February to July, I think that by far the best time is about the middle of February. By starting then the plants are fit to put out in their permanent quarters by July or August, and so have plenty of time to become established before the advent of winter. Thus really a year is saved, for the plants raised early will most certainly give a fair display

the following spring, whereas those raised in summer cannot be large enough the first season to provide a good show.

In preparing a soil for seed sowing, a mixture of equal parts loam and leaf-mould, with enough sand to keep it porous, will be suitable. A little burnt earth or pounded brick may be mixed with the soil required for the sowing of *Saxifraga*. If possible, sow each kind in a separate pot, pan, or box, for some germinate more quickly than others. Cover each pot with a piece of glass and a sheet of paper, and examine them frequently. When the seedlings have germinated the paper should be removed, and the glass also a few days later. Some kinds grow rapidly after they come through the soil, and all seedlings must be "pricked off" into boxes of fairly good compost as soon as fit to handle. Shade for a few days. After the little seedlings are properly established and have made some top growth, they are ready for removal to a cold frame, where they should be well aired and then gradually hardened off before being planted where they are to bloom. Should the weather be dry, water well until properly established.

To promote sturdy growth the surface soil should be frequently stirred with a small hoe or a hand fork. Keep down weeds, and in due course a fine display will be the reward for all the care and labour expended.

CHAPTER XIII

MAKING AND PLANTING A WATER GARDEN

A WATER garden may be of strictly formal design, as in a Lily pond or basin with fountain. As a rule, a water garden such as this is used as a central figure to some planting design. Many gardens, unfortunately, are spoilt by the presence of pools because there is an insufficient water supply and no provision for an overflow. Such pools are never clear ; they are little better than unclean duck ponds and convenient breeding-places for mosquitos. The formal water garden, with proper water supply and outlet, can be a very effective and pleasing feature in the garden, but it must be so placed that a liberal supply of water is available, in such a position that it can be turned on or off at will. Lily pools that have to be filled by hand or with garden hose are doomed to failure from the start, as the water is bound to get dirty and be a source of much trouble and expense in cleaning.

The formal water garden should be cemented (puddled clay ponds are seldom a success), and it is most important that the work of construction is done by competent hands. Complaints about leaky cement ponds are all too common. The basin must be well built at the outset, and should be made with the best quality cement. Very few gardeners are capable of doing this ; it is really the work of a builder. Do not, however, give the builder a free hand in the garden, lest the architectural embellishments appear out of all proportion to the area of water. Some water gardens are little more than stone monuments to over-

zealous builders. The minimum of masonry is most effective ; excess of it will ruin any garden. A well-proportioned circular or rectangular pool, say in the centre of a Rose garden, may be very beautiful, and its beauty will lie in its simplicity.

How to Make a Lily Pond.—Happy is he who has a never-failing stream in his garden, for it does not require much ingenuity to construct a dam to hold enough water for a collection of Nymphaeas. Around the edges of the pond Sedges, Reeds, Rushes, and other moisture-loving plants may be planted. If the pond is cemented and does not naturally lend itself to waterside planting, this may be ingeniously arranged for by introducing a series of marginal beds inside the coping of the pool, and may be so designed that these beds are kept permanently moist. The method adopted is to build an inner wall that comes up to a point just below the water-level. The space between the edge of the pond and the inner wall is filled with soil, and thus forms a wet border. By this means waterside plants which are by nature very rampant may be kept within bounds, and, what is more important, this does away with the hard and forbidding edge that a cement Lily pond usually presents.

Plants for the Water Edge.—Everyone who has been boating along the upper reaches of the Thames knows the great beauty of our native waterside flowers. It may be we have passed a spot by the river a thousand times without paying any special attention to it, then one day a picture, perfect in harmony, comes into view. A wild Rose with long, overhanging branches almost touching the flowing stream is smothered with pale single blooms ; the yellow Flag Iris (*I. pseudacorus*) is at its best, and around and between its leaves may be seen the clear blue Water Forget-me-not (*Myosotis palustris*),

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and the flimsy pink petals of the Ragged Robin (*Lychnis Flos cuculi*). We see these wild riverside flowers "with a child's first pleasure," as Wordsworth saw the Daffodils by the lakeside.

Our waterways provide us with admirable examples of the plants to select for the water edge. In marshy meadows we see the Buckbean (*Menyanthes trifoliata*), *Orchis latifolia*, *Thalictrum flavum*, and the blue-flowered *Geranium pratense*. Among other Thameside flowers are the Purple Loosestrife (*Lythrum Salicaria*), the Willow-herb (*Epilobium*), the Marsh Marigold (*Caltha palustris*), Skull Cap (*Scutellaria galericulata*), the Water Mint (*Mentha aquatica*), Yellow Loosestrife (*Lysimachia vulgaris*), Guelder Rose or Water Elder (*Viburnum Opulus*), Flowering Rush (*Butomus umbellatus*), in shallow waters ; the Arrowhead (*Sagittaria*), Water Plantain, Water Violet (*Houttonia palustris*), in soft mud banks and submerged in water ; Marsh Helleborine (*Epipactis palustris*), Grass of Parnassus (*Parnassia palustris*), in marshy places and bogs ; and the Cuckoo Flower or Lady's Smock. In the deeper back waters the Water Lily is common, also *Nymphaea lutea*. These are but a few of our native waterside and aquatic flowers, and there are garden forms of most of them.

Many plants, though not native, have become naturalized by the sides of our streams ; for example, the yellow Mimulus (*M. luteus*) and two Balsams or Touch-me-nots (*Impatiens Noli-me-tangere* and *Impatiens fulva*). These, like our true natives, are easily grown from seed, and it is only necessary to plant the seedlings in muddy soil at the water edge, when they will soon establish themselves and spread along the banks of streams or lakes.

Irises for the Waterside.—The improvement of a streamside is readily effected by planting the banks with

Siberian Irises, Globe Flowers and Giant Spearwort. The Irises make a delightful show in early June, and when clumps become overgrown they are easily put right by dividing them up as soon as the flowers are over. The Japanese Iris also has all the appearance of a waterside plant. Its tall, upstanding foliage asks for water and more water. It is moisture loving in the highest degree ; however, it does not like cold, clay soil, but does best in shallow water over a light soil. In Japan this Iris is grown in rice fields which are heavily manured in winter when drained dry. In summer the fields are flooded by irrigation, when the Irises are about 2 inches under water. It is a good plan to plant them on mounds which are above water in winter and submerged in summer, though at Wisley they are grown most successfully without any special winter treatment. The Japanese gardeners have worked up a wonderful variety of colour among these Irises. The flowers are of picturesque outline, and the colours range through white, lilac, Tyrian blue, ruby, crimson, and many other shades of marvellous beauty. They are best planted in July immediately after flowering.

Plants like Royal Fern (*Osmunda regalis*), double-flowered Meadow Sweet, Gunnera, Reed Mace, and double-flowered Sagittaria, are increased by the division of roots, and may be planted either in autumn or in March.

Water Lilies.—The question is sometimes asked whether Water Lilies can be grown successfully in running water, and one is reluctantly compelled to answer in the negative. It is true that the wild *Nymphaea* is sometimes found in our large rivers, but nearly always away from the current, and where the motion of the water is scarcely perceptible during the growing season. There is no doubt that still water suits them best, and a position fully exposed to the sun. They are not happy

under the shade of overhanging trees, and a continuous flow tends to keep the temperature of the water low. Nymphaeas love warmth. Very deep water is neither necessary nor desirable. Three or four feet is ample for even the most vigorous varieties, and others will thrive in 18 inches of water.

There are few things in this world lovelier than the pure white flowers of our native Water Lily. It is a popular flower, and rightly so ; but the modern varieties present a wide range of surprisingly beautiful colours, including red, yellow, and blue. Judging from the exclamations heard near Lily ponds in summer, it would appear that there are many who have been denied the joy of seeing Water Lilies of any colour other than our native white. There is great variation in size ; some of the flowers are a foot across, others only 2 or 3 inches ; some cup-shaped, others like stars ; some open when the sun is high, others when the sun is down. It is very curious how certain Water Lilies close about 10 A.M. and open again in the evening. Early morning is the time to see most Nymphaeas at their best in hot summer days.

When and How to Plant Water Lilies.—From late April to early June is the best time to plant. In shallow water it is advisable to plant in mounds of soil and to pack the soil firmly about the roots. In deeper water it is a good plan to place the tubers in a wicker basket, and to sink the basket into the water. Care should be taken to weight down the Water Lily crowns, as there is a tendency for an unestablished plant to rise to the surface. Water Lilies do best in very rich soil, and a generous quantity of well-decayed cow-manure, with the addition of bone-meal, should be mixed with good loam when making up the baskets. The manure must be well decom-

posed, or fermentation may take place when covered with water. After firmly packing the crowns (dormant roots) in the baskets, cover the soil with a thick layer of sand and flat stones to prevent any of the compost rising to discolour the water. The Water Lilies will establish themselves in the soil and mud on the bottom of the pool before the basket decays.

Another method of planting is to build three courses of common stock bricks loosely in the bottom of the pond for holding soil in which the tubers can be planted. When planting in shallow mud-bottomed ponds it is necessary to press the plants into the mud until their tops are just beneath the surface of the mud, using flat stones or bricks to hold them down. Beyond planting, there is very little in the way of cultivation that is called for other than the removal of dead leaves and keeping them as free from weeds and scum as possible, and of course avoiding over-crowding. Groups of Water Lilies lose much of their charm if allowed to spread at will all over the water.

How to Destroy Scum and Blanket Weed.—The best means of keeping down scum or blanket weed, which is so very troublesome in ponds, is to tie crystals of copper sulphate in a canvas bag and trail it over the surface of the water. It must, however, be used with care, as it is poisonous ; $2\frac{1}{2}$ oz. are sufficient to treat a pond containing 10,000 gallons of water ; it may, however, be used much stronger without fear of injuring the Water Lilies or fish.

Nymphaeas for Shallow Water.—It may sound a little strange, but it is quite easy to drown a Water Lily by planting it out of its depth. The following varieties can be grown in 18 inches of water :

W. B. Shaw, one of the prettiest of all, with rose-pink flowers.



Japanese Irises (*Iris kaempferi*) by the Waterside.



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Caroliniana nivea, fragrant, white star-like flowers.

Caroliniana rosea, a charming pink-flowered variety with yellow stamens, forming a pleasing contrast.

Laydekeri rosea, rich rosy carmine, bright orange-red stamens.

James Brydon, crimson-red, double, a splendid variety and fairly strong-growing.

Odorata minor, one of the smallest and often grown in tubs and tanks, the flowers are only 2 or 3 inches across, delightfully fragrant.

The forms of *Laydekeri* are scarce, but if obtainable they are ideal plants for small ponds and shallow water, three of the best being *fulgens* (amaranth red with crimson stamens), *purpurata* (deepest crimson), and *liliacea* (soft blush).

Nymphaeas for Deep Water.—The following are admirable, and have proved perfectly hardy in southern counties. They may be planted in about 3 feet of water.

Gladstoneana, large pure white.

Marliacea alba, one of the oldest of garden hybrids, with large white flowers freely produced.

Colossea, a magnificent variety, usually the first to open, deep flesh colour when first expanded, subsequently changing almost to white. Flowers very large and delightfully fragrant.

Mrs. Richmond, soft pink, deepening towards the centre, where the mass of yellow stamens makes an effective crown.

Atropurpurea, brilliant crimson, with prominent yellow stamens, one of the best of its colour.

There are two new varieties that stand out from others, viz. *Escarboucle*, brilliant vermillion red, and *James Hudson*, rosy crimson, both magnificent varieties and very scarce.

The Marliacea hybrids, *Marliacea carnea* and *rosea*, together with our native *Nymphaea alba*, are perfectly happy in 4 feet of water, and they often thrive in 6 or 8 feet or even greater depth. Of the Marliacea hybrids, the soft primrose yellow should be singled out for special mention ; there is no other variety of so good a colour unless it is *Moorei*—a shade deeper and, in the opinion of some, an even purer tone of yellow. These are the two best yellow Water Lilies.

CHAPTER XIV

PROPAGATING TREES, PLANTS AND SHRUBS

THE chief methods of increasing trees, shrubs and plants are by sowing seeds, taking cuttings, budding, layering, grafting and division. The commonest and the best, since the most natural, way is by sowing seeds, but it does not as a rule provide a full grown plant as quickly as the other methods. However, it has the great advantage of producing a plant that is healthy, vigorous, and usually longer lived than those increased vegetatively, that is by taking parts of existing plants or trees and inducing them by various ways to form new entities.

Sowing Seeds.—Annuals (plants that bloom in summer from spring-sown seed and die after having flowered) and biennials (that are sown one year, bloom the year following, and then perish) are raised from seed, for if a plant is a true annual or biennial it cannot be reproduced in any other way. Perennial plants may also be raised from seed, and if this is sown in spring the seedlings will usually bloom the following year, though they may not be at their best until two or three years old. Trees and shrubs of which seeds are procurable may also be raised in this way.

The seeds of some trees, for example those of Maple, Chestnut, Oak and Poplar, germinate badly if they are kept for any length of time after being gathered. It is best to sow them at once, or if that is not possible, they should be stored until spring in moist sand. Those of the common kinds may be sown out of doors in autumn

or spring ; those of choice kinds should be sown in boxes or pots of soil in a frame.

The best time to sow seeds is in late summer, as soon as they are ripe ; they then germinate more quickly than if stored for some months. However, it is generally more convenient to delay seed sowing until spring, and it is found that most seeds are not adversely affected by being stored for that period. Hardy annuals are sown where they are to bloom in the beds and borders, the seedlings being thinned out to the correct distances apart. Hardy biennials are sown in spring or early summer, preferably in boxes of soil in a frame, though they may be sown on prepared soil out of doors. Hardy perennials may be sown under glass in spring, or out of doors in early summer. A few of them such as Lupin, Oriental Poppy and Polemonium may bloom late in the summer of the first year, but most of them will not flower until the year following. If the seedlings are transplanted at 6 inches or so apart to a reserve border when they are of fair size, they will be large enough to be planted permanently in autumn.

The soil used for seed sowing in pots or boxes should consist of sifted loam and leaf-mould in about equal quantities, together with a free sprinkling of sand. Tiny seeds should be covered by the merest sprinkling of fine soil or sand ; those of moderate size, e.g. Sweet William, Carnation and Pink may be put rather less than half an inch deep, while the large ones, e.g. Sweet Peas, should be buried an inch or so.

Seed pans are found more convenient than flower-pots for seed sowing, for they are wider and shallower. They should be filled almost to the rim, so that the seedlings can be taken out without difficulty. When the seeds have been sown, the soil should be moistened by syringeing, the

seed pan or box being covered with a piece of glass, and then with brown paper. It is important to keep the soil always moist. As soon as the seedlings show through, the coverings must be removed, but the little plants should be shaded from strong sunshine for a few weeks, and kept reasonably near the glass to prevent their becoming "drawn."

The best way to water small seedlings is to dip the flower-pot or pan in a pail of water, immersing it almost to the rim; as soon as the water is seen to reach the surface it is known that the soil has been moistened through. This is better than watering the soil from above through a watering-can, since it does not disturb the seedlings.

Seedlings that have been raised under glass ought to be gradually hardened off before they are planted out of doors. This is done by placing them in a frame for a week or two.

Taking Cuttings.—There are two chief kinds of cuttings, those formed of the young, green shoots of plants, and others made from matured or hard shoots. Those of the former class are chiefly used in increasing such plants as Chrysanthemum, Fuchsia, Viola, Pansy, Pentstemon and other greenhouse and half-hardy bedding plants. Cuttings of woody growth are used in the propagation of trees and shrubs and fruit bushes. The former are inserted in spring, summer and autumn according to the time when they are available. They should be placed in pots of sandy soil, round the edges of the pots rather than in the middle, and covered with a handlight or glass case for three or four weeks to induce them to form roots quickly. When it is found that roots have formed the covering should be removed.

Trees and shrubs are increased by means of cuttings

placed in well-dug soil out of doors in September or October. A small trench with a straight "back" should be taken out and sand scattered in the bottom. Rather more than half each cutting should be beneath the soil, which must be made firm at the base of the cutting. Many flowering shrubs may also be increased by means of cuttings taken in July, when the shoots are moderately woody or half ripe, and inserted in sandy soil in a cold frame which must be kept closed for a few weeks. The cuttings of Black, Red and White Currants and Gooseberry are inserted out of doors in autumn in the way described. They should be from 9 to 12 inches long. All except three or four of the uppermost buds are taken out of Red and White Currant and Gooseberry cuttings, but all are left on Black Currant cuttings.

Root Cuttings.—A few plants are increased by means of root cuttings. The plants are dug up and the roots are cut into pieces 3 or 4 inches long, and are placed horizontally, an inch below the surface, in a box of soil in a frame in late summer or early autumn. Plants that may be increased in this way are Italian Alkanet, Japanese Anemone, Oriental Poppy, Bleeding Heart or Dielytra and *Crambe orientale* (Ornamental Seakale).

Layering.—This is a convenient form of propagation since it provides a plant of good size in a comparatively short time. It is used chiefly in increasing Strawberry, Border Carnation, Rhododendron, vigorous Roses, and other shrubs. It is easily accomplished by bending down a branch that is near the ground, making a slit in it where it touches the soil, and pegging it down firmly; it is advisable to fork up the ground and add some fine sandy soil where the branch is pegged down. The slit portion should be kept open by means of a stone or short piece of wood. It is necessary to peg the layer firmly in the ground



The Yulan (*Magnolia conspicua*), a beautiful shrub that blooms in April.

and to keep the soil moist. The length of time during which the layer must remain undisturbed varies. Layers of Strawberry will be ready to take up in six weeks, and those of Carnations in eight weeks, while most shrubs should be left undisturbed for a year. July is a suitable month for the work of layering.

Division.—This method requires little explanation. It is useful chiefly in dealing with herbaceous perennials which it is desired to increase. The old plants are dug up and separated into several pieces, those on the outer edge being chosen for replanting, the inner and older part being thrown away. This may be done in early autumn or in spring. If the work is done in autumn and the pieces or divisions are potted singly in flower-pots and kept in a frame for the winter, they may be planted out of doors in spring. They will produce fine flowers the following summer.

Grafting.—There are various methods of grafting. The size of the tree, shrub or plant to be grafted usually influences the method selected. Amateurs will not find much need for grafting except perhaps when they wish to cut down the branches of a worthless Apple or Pear tree and to graft them with a better variety. The branches should be cut back to within from 1 to 2 feet of the base in February ; the older they are the longer should they be left. The scions or grafts ought to be preserved when winter pruning in January, tied in small bundles, labelled, and partly buried on a cool, shady border. From the middle of March to early in April is the time for grafting ; mild, showery or cool weather should be chosen for the work. For rejuvenating an old fruit tree, the method known as cleft or wedge grafting is best. Several scions may be inserted round the edge of each branch. The scions should be 10 inches or so

long ; it is an advantage to cut partly through the scion at 2 inches from the base, and from there downwards to taper the end to a point. The haft of a budding knife or other suitable instrument is pushed down behind the bark of the stock—the shortened branch—and the scion is inserted to such a depth that the part where the cross cut was made rests on top of the stock. When all the required grafts have been inserted in this way, they should be covered round the base with moist clay or grafting wax.

Budding.—Amateurs who like to bud their own Rose bushes and standards may do so without difficulty once the knack of budding has been acquired. The time for budding is late in July or early in August. The buds are chosen from growths of the current year ; they must not be taken off until everything is ready for their insertion, and even then should be kept in water until needed. The actual bud is found in the leaf axil. This is cut out, together with half an inch or so of stem on each side of it. The leaf stalk or part of it is left on so that the bud can be handled conveniently. The difficult part of budding consists in removing the woody part immediately behind the bud without damaging the actual "eye" or growing point of the latter. The following direction shows how it is most likely to be achieved : "The bud is held between the left thumb and finger with the 'eye' pointing downwards. The thumb nail of the same hand is pressed over the 'eye' and with the right thumb and finger the piece of wood is jerked out." To receive the bud, a T-shaped cut is made in the stock, the edges of the bark are raised slightly and the bud is pressed down behind the bark. It then remains but to tie the bud securely with raffia and the work is finished. Standards are budded near the base of shoots of the current year. Dwarf stocks are budded close down near the root.

PART TWO
Hardy Flowers

CHAPTER XV

ROSE GROWING

THE modern Rose is an ideal garden flower, and its progress in popular favour is not surprising. The twentieth-century Rose bush begins to bloom in June (some varieties even in May), and continues to flower until the approach of winter puts an end to its activities. Most of the varieties now in cultivation belong to the Hybrid Tea class, which originated more than a generation ago as the result of a cross between the old Hybrid Perpetual and the Tea Roses. Amateurs often find a difficulty in appreciating the distinctions between Hybrid Perpetual, Hybrid Tea, Tea, and Pernetiana Roses, which are the chief classes in cultivation to-day.

The Hybrid Perpetual.—It is not difficult to recognize the Hybrid Perpetual Rose; most of the varieties are distinguished by vigorous growth, and large blooms of one well-defined colour, and by the fact that they bloom little in autumn. There are a few exceptions, but generally the Hybrid Perpetuals may be regarded as summer flowering Roses only. Typical examples are Charles Lefebvre, Duke of Edinburgh, Ulrich Brunner, Horace Vernet, and Abel Carrière.

The Hybrid Tea.—The distinguishing characters of the Hybrid Tea are moderately vigorous growth, blooms

of medium size that show a wide range of colour, and are produced continuously or almost continuously during summer and autumn. Owing to the immense amount of cross-breeding that has been carried out during the past fifteen years, the Hybrid Teas, which are now innumerable, show great variation in vigour of growth, in form, and colour of bloom, though most of them come within the general description given above. Some of them have blooms of perfect form, beautifully moulded, and with pointed petals, while others are only semi-double, buds one day and full blown the next day, or buds in the morning and full blown in the afternoon of a hot day. Again, other varieties have single flowers.

The Hybrid Teas are ideal decorative Roses, both for garden display and for use in the home when cut. They usually have long stems, and the blooms, though lacking the size of those of the Hybrid Perpetuals, are very numerous. Amateurs cannot do better than choose most of their Roses from among the Hybrid Teas.

The Tea Rose.—The true Tea Roses are more delicate than the Hybrid Teas, for the latter have inherited some of the vigour and hardiness of the Hybrid Perpetual ; they are liable to be damaged during severe frost. They are characterized by a somewhat spreading habit of growth, by slender twiggy branches, and by comparatively small blooms, generally of pale colouring, that possess a delicate fragrance. They bloom more or less continuously from June until autumn.

The Pernetiana Rose.—The Pernetiana Roses form a comparatively new class, derived originally from the Persian Yellow Briar and a Hybrid Perpetual. They are not altogether such satisfactory garden plants as the Hybrid Teas, chiefly because their somewhat soft branches are liable to be damaged in a severe winter, and because



Pillar Roses in the Hardy Flower Border.

they are peculiarly susceptible to attacks from that dire disease, Black Spot. Despite these drawbacks, some of them must be regarded as indispensable, because they provide us with Roses of brilliant and distinct colour, such as are not found in any other class. They furnish, for instance, the only true Daffodil yellow Roses in cultivation.

The Dwarf Polyantha Rose.—The dwarf Polyantha Roses, which bear clusters of small blooms like Ramblers and flower from summer until autumn, have become very popular during recent years. They are derived from the climbing Rose of which Crimson Rambler is a variety, namely, *Rosa polyantha* or *multiflora*, and their dwarf or low habit of growth is fixed. They vary in height from about 12 to 24 inches, and are admirable plants for filling flower beds, for they are never altogether without blossom in summer and autumn. Some of the varieties are of rather crude colour, so that a selection must be made with care.

The China Rose.—The China Roses are moderately vigorous bushes of somewhat slender growth that seem to be gradually declining in public favour; the blooms are small and without pretence to fine form, but the plants flower freely and continuously in summer and autumn.

The Hybrid Musk.—A new race of Roses that has attracted a good deal of attention, and has proved of decorative value in the garden, is found in the Hybrid Musks. These form large loose bushes and bear single or semi-double flowers of various shades of colour; most of them are musk scented. The bushes bloom from early summer until autumn. The Hybrid Musk Roses are too vigorous for planting in an ordinary Rose bed, and are better suited to the shrubbery border; or they look well

in a bed by themselves. They reach a height of from 4 to 5 feet.

RAMBLING AND CLIMBING ROSES

Most of the rambling Roses now grown in gardens belong to the *wichuraiana* group, which originated from the crossing or hybridizing of the wild Japanese Rose (*Rosa wichuraiana*) with some of the garden varieties of Roses. This resulted in the production of such as Dorothy Perkins and Alberic Barbier, still two of the best. Most of these *wichuraiana* or rambling Roses take after the wild Japanese kind in so far as they produce very long and comparatively slender branches, though the flowers, of course, have been greatly "improved," that is to say, they have been enlarged and their range of colour extended. They are everybody's Roses, for they are the easiest of all to grow and manage successfully. If any fault is to be found with them it is that they make such exuberant growth as to take up more room than can conveniently be found for them in a garden of limited extent. They bloom, alas! in summer only—some of them bear a few flowers in autumn also—but they provide a glorious display that eclipses in magnificence any other plants or shrubs of the summer season.

Another class of Rambling Roses contains those of the Crimson Rambler type, which have been derived from *Rosa multiflora*. These are of stiffer habit of growth than the *wichuraiana* Roses; they do not produce such long or such slender stems, and though they bloom freely they scarcely provide so striking a display as the *wichuraianas*. They also bloom in summer only. A few varieties are well worth planting, but this type is not so generally useful or attractive as the other chief ramblers. Popular varieties are Blush Rambler, Tea Rambler, and Scarlet

Climber. The last named is probably the loveliest of all climbing Roses, and must be regarded as indispensable.

The true climbing Roses, consisting of varieties descended from the Hybrid Tea, Tea, Evergreen, Bourbon, and other classes, are still invaluable for planting against walls, or for covering arches. They never provide such an enchanting display of bloom as the rambler Roses do, but most of them have the great advantage over the latter of being more or less continuous flowering. During summer and autumn it is generally possible to gather blooms from them. While the individual flowers of the ramblers are small and single, or semi-double, those of many of the true climbing Roses are of fair size, and are thus of considerable decorative value for vases when cut.

The best time to plant Roses is late in October, during November, and early December. They may also be put in throughout the winter months when the weather is mild and the soil is not sodden, and planting may be continued until the end of March or early April. There is, however, no doubt that Roses planted in early autumn will give a far better account of themselves the following summer than those of which planting is delayed until spring ; it is wise, therefore, to order the plants from the nurserymen in summer so that they may be received in time for autumn planting. For general instructions in the details of planting the reader is referred to the notes on page 13.

Winter and Spring Planting.—Work in the garden is often controlled by circumstances, and it may be necessary sometimes to plant in winter or spring. If the work has to be carried out in mid-winter, when the ground is wet, it is a great advantage to have a barrowful of fine dry soil for placing directly among the roots ; it can be

worked well between the latter and trodden down firmly, and that is not possible when sodden soil has to be used.

When planting Roses in spring the chief precaution to take is to prevent the plants suffering from lack of moisture. The roots should be dipped in a pail containing puddled clay ; this material will then cling to them and help in keeping them moist in dry weather. Further, the Roses ought to be well watered when planting is completed. They will be assisted to start more freely into growth if the branches are syringed in the evenings of warm days. If, on arrival, Rose bushes are seen to have a shrivelled appearance, they should be buried, roots and branches, in the soil for a few days ; when taken out of the soil they will be much fresher.

Transplanting Roses in Summer.—Amateurs who move from one house to another in summer, when their Rose bushes are in full leaf, often ask whether it is possible to remove the plants with safety at that time. It can be done, and there is a reasonable chance of most of them surviving, unless they are large and old and have been undisturbed for many years. Strange as it may seem, the method most likely to ensure success is first to take off all the leaves from the Rose bushes ; this has the effect of preventing loss of moisture through the leaves, and the plants suffer less from the move than they would do if the leaves were left on. They should be lifted with care, so that as few roots as possible are damaged, and if some of the soil can be left on the roots so much the better. When transplanting the Roses in summer it is important that they be left out of the ground for the shortest possible time, and after having been replanted they should be well watered. Syringeing them in the evening also does much to enable them to become re-established quickly.



A Creeper-covered Corner. On the left, *Polygonum baldschuanicum* ;
on the right, *Clematis "Nellie Moser."*

When to Manure Rose Beds.—The question as to whether or not Rose beds should be manured in autumn or in spring exercises the minds of many amateurs, and there is a good deal of difference between professional gardeners on the subject. I believe it is a good practice to apply yard manure to the Rose beds in autumn, providing the manure is forked beneath the surface and thus is mixed with the soil. If it is simply laid on the ground it tends to keep the soil cold and sodden, and that condition can scarcely be good for the plants. If, however, it is lightly turned in, the surface soil is exposed freely to the air and sunshine of winter, which must have a beneficial influence ; in spring it breaks down readily and is kept friable throughout the season without difficulty. One often sees yard manure piled high round the base of the stems of standard Roses in autumn, and left there until spring, in the mistaken belief that it affords necessary protection.

Protecting Roses.—As a matter of fact, it does nothing of the sort, for the vulnerable part of a standard Rose is not at the base of the stem but at the top of it, where the variety was budded on the briar stock. Thus standard Roses are most effectually protected by placing straw or bracken among the branches, or by tying these loosely together and fastening one of those materials round about them. The roots of Roses do not require protection, for they are sufficiently deep in the ground to be safe from harm.

So far as bush or dwarf Rose trees are concerned, the best method of protection is to place a heap of ashes or soil over the base of the plants for the purpose of protecting the lowest buds on the branches ; it is on these that reliance must be placed for the fresh shoots of the following year. It matters very little if the upper-

most parts of the branches are destroyed, for in any case the spring pruning would remove them. Providing the basal buds are unharmed, there is no doubt of successful growth and flowering.

Roses need far less protection than is thought necessary. In the southern counties and other comparatively mild districts it is doubtful if any of them—except, perhaps, the Tea and Pernetiana Roses—need be protected ; these two classes, and especially the Pernetianas, are chiefly liable to be damaged, and it is wise to care for them in the way suggested.

An Explanation of Pruning.—The simplest way to arrive quickly at an understanding of the pruning of dwarf or bush Rose trees is to realize that the work consists (1) of cutting out certain shoots or branches, and (2) of shortening or cutting back others. Those to be cut out are the dead and weakly ones, and those that spoil the shape of the plant by growing across the centre. The remainder are to be shortened to a greater or lesser extent, according to their vigour and according to the purpose in view. If an abundance of bloom is wanted, without particular regard to its quality, then light pruning is essential ; if, on the other hand, fewer blooms of better quality are desired, the pruning must be more severe.

Light and hard pruning are terms which do not convey much to the average amateur gardener who comes new to gardening. If, for example, a Rose bush has two or three shoots or branches which are, say, 2 feet long and as thick as a lead pencil, and they were to be shortened to within three or four buds of the point where they started to grow the previous year, that would be called hard pruning. The result would be the production of a small number of shoots bearing blooms of good quality,

though not many in number. If the shoots were to be shortened by half only that would be called light pruning, and would result in the plants bearing a larger number of flowers of moderate quality.

I believe the ideal way to prune a Rose bush is first to cut out all weakly shoots and those that block up the middle, eventually leaving only four or five of the most vigorous, and to shorten these to within from two to four buds of the base. In this way you restrict the energies of the Rose tree and enable it to concentrate on the development of branches that will bear good blooms. There are, on the other hand, many who like to have big Rose bushes in their gardens and to see them laden with blossom in due season ; they will naturally leave more branches and will shorten them only by half or perhaps not cut them so severely as that. But to have a shapely plant that will bear good Roses of fine form and with long stems, I believe the method I advocate is the better. On bushes lightly pruned the Roses are usually short-stemmed, and therefore of little value for cutting.

One of the first articles of faith in Rose pruning is to preserve an open centre ; if you do that and it is only achieved by cutting out useless shoots, and prune the remaining shoots fairly hard, there cannot be very much wrong with your method.

It is deplorable to see people walk round their Rose bushes and with sécateurs snip off the tips of the branches and perhaps cut out a dead branch here and there. What is the result ? It is seen in large, ungainly bushes, bare of leaves on the lower part, which become more ungainly as the years pass. Such pruning as I have described is applicable to most of the Hybrid Tea and Hybrid Perpetual Roses.

Pruning Tea and Pernetiana Roses.—So far as pruning the Teas and Pernetianas is concerned, it consists of cutting back the partly dead branches to sound portions and removing all weakly and useless, ill-placed shoots. As a rule, there is little real pruning to do, for the dull, damp conditions of our winters, with alternating frost, usually kill the upper parts of the branches.

The different Roses vary so considerably in their vigour and habit of growth that it is impossible to say exactly the kind of pruning best suited to each one, but having an understanding of the subject and bearing his own views in mind as to the kind of bush and the kind of flower he wants, the amateur should have little difficulty in adapting his methods to each variety and each plant.

Roses that thrive best when allowed to develop into big bushes, such, for example, as the new hybrid musk Roses, need little pruning ; all that is required is to cut out the old stems in autumn, leaving the young branches to replace them.

Pegging Down Rose Shoots.—A method of dealing with such vigorous Roses as Hugh Dickson, Frau Karl Druschki, and a few others, when grown as comparatively dwarf bushes, is known as pegging down. Instead of shortening the long shoots—they may be 5 feet long—at pruning time in spring one pegs them down, securing the ends to pegs thrust in the soil. If so treated, the branches will produce blossoms from almost every bud ; it is true that the flowers will be rather short-stemmed, but they will be far more numerous than if the branches had been pruned back in the usual way. As the pegged-down branches are not likely to bloom much after the first crop of flowers, they should be cut well back to force the development of other branches, which, if vigorous enough, may be pegged down similarly the following spring.



Weeping Standard and Bush Roses on the lawn near the house.

Pruning Climbing Roses.—The pruning of the rambler wichuraiana and multiflora Roses, i.e. the Dorothy Perkins and Crimson Rambler types, is a simple matter ; it consists in cutting out the old stems in late summer and in tying to the supports the fresh growths which will bloom the following year. Some varieties do not produce fresh stems from the base of the plants so freely as others, thus the old ones cannot always be cut out right to the base ; they must be shortened only to where the fresh branch starts to grow. Care should be taken not to denude the trees of stems ; it may happen that only a few fresh ones have developed, and it will then be necessary to leave some of the old ones to furnish the support. The way to prune the old stems is to cut back the side shoots in March to within three or four buds of the main stem.

In pruning the climbing, as distinct from the rambling, Roses the knife should not be used too drastically. They do not produce fresh shoots from the base in abundance as most of the ramblers do ; the new shoots usually originate some way up the old branches, and it is rarely that the latter can be cut out altogether. But whenever an old branch or part of it can be replaced by a young one it should be removed. Such pruning should be done in late summer or autumn.

Climbing Roses also need some attention to pruning in spring, though all that can then be done is to shorten the side shoots on the older branches and perhaps to cut off the ends of young branches if they are soft or thin. It is a sound plan in pruning climbing Roses to endeavour always to cut out old "wood" whenever new shoots are available.

The climbing "sports," or variations of certain dwarf Roses—Climbing Sunburst and Climbing Richmond are

examples—need rather careful pruning, or the plants may revert to the dwarf form from which they were derived and refuse to climb at all. They ought to be lightly pruned in the spring following planting, the branches being shortened by about half. In future years, when strong shoots have grown, old and weakly ones can be cut out.

Pruning after Planting.—The first pruning after planting is an important one. Presuming that planting was carried out in autumn or early winter, the first pruning will be in March. It must be severe, for severe pruning helps the plants to become established quickly. It forces them to produce fresh vigorous growth from the dormant buds at the base of the branches. When dealing with bush Roses the strongest shoots should be shortened to within three or four buds of the base and those of moderate vigour to within one or two buds, all weakly ones being cut out. Rambling Roses may with advantage be cut down to within 6 inches or so of the ground in the March following autumn planting ; it is not absolutely essential to do so, but it ensures the development of fresh, vigorous stems which will bloom well the year following. If, on the other hand, only the weakest stems are cut down, those remaining will blossom to some extent, but the plants may not grow so strongly as those that were severely pruned. It therefore depends whether or not the planter thinks it worth while to risk jeopardizing the growth for the sake of a few blossoms. Personally, I do not think it is, for if the plants do not grow vigorously during the summer they will not bloom well the year afterwards, and thus two seasons instead of one will have been lost.

CHAPTER XVI

NEW AND NOTEWORTHY FLOWERS AND SHRUBS

THE first twenty years of the present century mark a definite period in the progress of horticultural exploration and discovery. From China and Tibet such great collectors as Henry, Wilson, Purdom, Farrer, Kingdon Ward, Forrest, and others, have sent home innumerable species. New families of plants have been discovered and old ones added to. In *Rhododendron*, *Berberis* and *Primula* there are hundreds of new species, and these three genera have probably been enriched to a greater extent than any others. These discoveries are an immense stimulus to gardening. But it must not be imagined that every new plant or shrub from China is "a winner"; there are many of which it may be said they "also ran." If only one per cent. of plants collected prove worthy and permanent in English gardens, their introduction will not have been in vain.

INTRODUCED FROM OTHER COUNTRIES

Buddleia variabilis came to us from Western China, and was first discovered by Dr. Henry in 1887. It is now one of the commonest shrubs in cottage gardens in the west of England. Moreover, it is very beautiful, and its long pyramids of lilac-purple flowers in late summer are the source of great attraction to bees and butterflies. It is not unusual to see dozens of butterflies at a time hovering round the long waving panicles of bloom. And

how they enhance the gaiety and interest of the garden ! It is advisable to cut this shrub hard back every spring to get good strong shoots. When so treated it is not unusual to get vigorous growths 8 feet long in the season, and these growths terminate in panicles of blossom.

Davidia involucrata.—It was in 1899 that Veitch first sent Wilson to Yunnan to find the famous tree Davidia involucrata. Needless to say he found it, and during the last year or two it has flowered in many gardens. A tree in full bloom has been described as like a cloud of white butterflies dancing in the breeze.

A Blue Rhododendron.—Many other good shrubs were also discovered about that time, notably the blue-flowered Rhododendron intricatum, a really dainty alpine species, and Berberis Wilsonae, the most beautiful of all dwarf deciduous shrubs, forming a low, spreading bush half covered in autumn with clustered berries which are at first cream and gradually suffuse with pink till they are bright coral.

Viburnum Carlesii and **Rosa Moyesii**.—These are two of the very choicest of many shrubs introduced from the Far East in recent years. Both are of permanent value in English gardens, thriving in any ordinary garden soil.

Viburnum Carlesii flowers in April and May and possesses many virtues, viz. grace, exquisite fragrance, free flowering and hardiness. Even quite small plants carry many trusses of lovely pale pink flowers. If the plants are grafted, care must be taken to keep down suckers, for it is "worked" on Viburnum Lantana, and the leaves of the two shrubs are much alike. Many have found, when too late, that the coarse native stock has overcome the scion. Happily, plants are to be obtained on their own roots from nurseries.

We were led to expect a great deal by the arrival of



Bold groups of Alpine flowers in the Rock Garden.

Viburnum fragrans, but in the writer's experience it is not to be compared in size and beauty with the best form of *V. Carlesii*. Its chief merit consists of flowering in winter; the flowers, opening in January and February, are particularly welcome at that season.

Rosa Moyesii.—It was worth while sending an expedition to China if only to bring back *Rosa Moyesii*, a Single Rose of curious, almost dull ruby-red colour. It will grow as freely as the briar, and even after flowering it is still of much beauty by virtue of its large bright red bottle-shaped hips that colour up so well in autumn.

The Chinese Witch Hazel (*Hamamelis mollis*).—That this is one of the finest shrubs of recent introduction is borne out by the fact that it was the first plant to receive the Wisley Award of Garden Merit, i.e. a new award granted by the Royal Horticultural Society to garden plants of, exceptional merit.

This Chinese Witch Hazel has curious spidery-looking golden-yellow flowers that open in the early days of the year. No matter how cold it may be, the flowers never fail to open in January and February. The colder the weather the better they seem to like it. Considering the ease with which it may be grown, the wonder is it is not seen more frequently. It likes a warm, sunny spot, and will thrive as well in a town garden as in the country. Why this shrub blossoms while others are still in their winter's sleep is not easy to tell. The flowers are borne in clusters in great profusion. Just picture for one moment a cloud of shimmering yellow flowers on bushes 4 or 5 feet high, and the air filled with a sweet fragrance like that of Cowslips, and this in the dead of winter!

The Marsh Glory Primrose (*Primula helodoxa*).—A great many hardy Primulas have been introduced in recent years, but none has met with more unqualified

approval than the Marsh Glory Primrose, collected by Mr. George Forrest in Western China in 1913. From its first introduction we were led to expect much, nor were we disappointed. It is a rare occurrence for a new plant to justify all that is expected of it in the way this *Primula* has done. Robust in habit, almost evergreen, it has passed through the winters unprotected in districts as far apart as Southampton and Edinburgh. It is naturalized in Hampshire gardens, where the flower stems attain a height of 4 feet and more, and have been known to carry fifteen scapes or whorls of bloom. The flowers are bright golden-yellow and fragrant. In all probability *Primula helodoxa* will be much used as a parent for hybridization, and we may anticipate the introduction of many new and beautiful forms as the result of crossing it with some of the Chinese *Primulas* now in cultivation.

Primula helodoxa may be grown from seed, or plants can be purchased in spring and planted out. It likes a cool, damp situation, as in a woodland or on the side of a woodland ditch; anywhere, in fact, where the better-known *Primula japonica* or *P. pulverulenta* will thrive will suit the Marsh Glory Primrose.

Two Beautiful Gentians.—Two very lovely Gentians have been introduced from China, viz. the pale blue *Gentiana Farreri* and the deep blue *Gentiana Sino-ornata*, both of semi-prostrate growth with large flowers pencilled with black. They are admirable for fairly sunny positions in the rock garden, and in those gardens where Gentians are known to thrive these two will produce a wonderful sheen of blue continuously from August until late in autumn.

NEW FLOWERS RAISED AT HOME

The raising of new plants is an extremely interesting pastime, but it is not as lucrative as it may sound. It

is full of joys and disappointments. The most beautiful parent flowers, perfect in form, fragrance and colour, do not always give the best seedlings, and unless the seedling—be it Lupin, Iris, Pink, or any other flower—is distinct and good in constitution, it is not good enough to introduce as a new variety. Only the very best are selected and shown to the public; the others are rigidly discarded. For every variety brought out there are scores—possibly hundreds—thrown away. A high standard of selection and a rigid process of elimination are the only sure ways of maintaining a standard of quality unimpaired.

New Michaelmas Daisies.—Beautiful as many of the old Michaelmas Daisies undoubtedly are for garden effect, they are eclipsed by modern varieties. The delightful colours of these novelties, seen in September and October, quite baffle description. Here are a few singled out from many: King George and Beauty of Ronsdorf, both of the Aster Amellus section, with large flowers at least $2\frac{1}{2}$ inches across in enormous trusses; the former is deep violet-blue, and the latter of a lovely lilac-pink colour. The plants themselves grow no more than about 18 inches high. The variety King of the Belgians, with large semi-double lavender-blue flowers, is one of the best for cutting, and it is claimed to be the largest flowered Michaelmas Daisy in cultivation. The flowers are certainly larger than those of the well-known variety Climax; it grows to a height of about 5 feet. Then there is the Cornflower blue Anita Ballard, and Brightest and Best, one of the latest to open, the flowers being freely borne in pyramids of deep purple-rose. The flowers of all the varieties mentioned are seen from afar, and are therefore particularly effective in the border; they also act as magnets for attracting Red Admirals and Tortoiseshell Butterflies,

which, like a London crowd, seem suddenly to come from nowhere.

The best of the double white Michaelmas Daisies is J. S. Baker, which received an Award of Merit from the Royal Horticultural Society ; it grows to a height of $2\frac{1}{2}$ feet, and is massed with blossom from the ground upwards. Those who prefer double Michaelmas Daisies should make a point of planting Rachel Ballard, rosy mauve ; Dick Ballard, rosy pink, and Ethel Ballard, one of the finest of the true pinks, all of delightful colours, excellent border plants and admirable for cutting purposes.

New Hybrid Irises.—The tall June flowering Irises have been improved almost beyond recognition. This modern group of Irises affords a happy example of the hybridist's skill, but there is a tendency to develop the size of the flowers at the expense of their grace and form. The beautiful and well-known Iris pallida dalmatica is still one of the finest Flag Irises, and is grand for massing and colour effect. No new Iris has created greater interest than Dominion ; the rich blue flowers are of heavy build, large, erect, and well developed, the falls of the flower unfolding at the base to a deep rich indigo-purple. It is an important-looking flower ; moreover, it is the forerunner of a new race. There are already varieties of the new Dominion race, viz. Bruno, bronze and rich red-purple ; Cardinal, rich purple, the richest and brightest of them all ; Duke of Bedford, deep violet, almost black in certain lights ; and Swazi, reddish violet, clear and bright. These varieties, however, are as yet very scarce.

Here is an attempt to name a few that make a strong appeal and are within the reach of all : Alcazar, a magnificent variety, deep violet with bronze-veined falls ; Ambassadeur, reddish-violet, of great charm ; Lord of June, the finest of the lavender-blues ; Prospero, red-

purple, very tall and vigorous; Souvenir de Mme. Gaudichau, deep purple of velvety appearance, the gem of French productions; and the stately Susan Bliss, the nearest approach to pink we have yet seen among Flag Irises.

The Modern Montbretia.—There appears to be much misunderstanding about the cultivation of the modern Montbretia. Of course, the common varieties spread like weeds, but the better forms, such as Star of the East and Prometheus, need a little coaxing. To succeed with them the ground should be trenched in December and left rough. A good dressing of decayed leaves should be added at the time and worked in between the top and bottom "spits." In February a dressing of lime should be applied and allowed to slack on the surface of the ground, and another application of decayed leaves might be given at planting time. Montbretias revel in leaf-soil. The best time to plant is April and early May. It is usual to plant dry bulbs at that season, but with the newer hybrids excellent results are obtained from stolons which have been potted up and have been specially prepared for planting out after hardening off in frames. Many of the best of the Earlham Montbretias have been named after illustrious kings and queens. For example, Queen Adelaide, deep orange; Queen Alexandra, apricot yellow; Queen Boadicea, orange-copper; Henry VIII, deep orange; and His Majesty, of crimson hue; these are large-flowered varieties with stems about 4 feet high when well grown.

A new race of Lupins, known as Downer's Hybrids, has aroused much interest. This strain comprises distinct colours and forms of *Lupinus polyphyllus*. Among the best are May Queen, royal purple; Red Star, reddish-purple; and Downer's Delight, deep red. Hitherto the Lupin has been regarded as a very commonplace plant in

gardens, but these new sorts have raised it to a level with our most cherished Delphiniums, Phloxes, and the élite of hardy border flowers. In passing, it may be mentioned that these Lupins are invaluable for combining with the June flowering Irises, as they may be planted to form either a colour harmony or colour contrast. They invariably flower at the same time, and the colours may be associated with pleasing results.

A Golden Geum.—No doubt most amateur gardeners are familiar with the beautiful scarlet Geum known as Mrs. Bradshaw. It is one of the most brilliant of all scarlet flowered border plants. And now we welcome a golden-yellow companion under the name of Lady Stratheden ; it is generally regarded as one of the best hardy herbaceous plants of recent introduction, it has large double flowers, and possesses a vigorous habit of growth.

Perpetual Flowering Pinks.—The homely little Pink which adorns the cottage garden is still indispensable, but by crossing it with the Perpetual Flowering Carnation a new race of Pinks, known as *Dianthus Allwoodii*, has been evolved. Not only are the varieties delightful in themselves and as hardy as Shetland ponies, but they have all been christened with simple and for the most part old-fashioned names. Robert is a shade of old rose—not everyone's colour ; Rufus is a shade of pure Rose du Barri—a very pleasing tone of colour ; Albert, a delicate mauve, with deeper lacing at the base of the petal ; Harold, double white, resembling a glorified form of that popular garden Pink Mrs. Sinkins, but Harold possesses a sound calyx and more substance in the petals ; Joan is salmon-pink, with maroon eye ; Susan, pale lilac, with an appropriate black eye ; and Maud, salmon-rose, in clusters, seen at her best in the terrace garden.

These new hardy plants grow like Pinks and flower when established from spring to winter. When left undisturbed for years we have had plants half a yard across with many hundreds of flowers on each. There are other new races of Pinks, notably Prichardi and Herberti, which for quality, colour and fragrance are possibly as good, or even better, and we are certain to hear more of these when better known—they are likely to improve on acquaintance.

Rose Pink Kaffir Lily (*Schizostylis coccinea* "Mrs. Hegarty").—Instead of having scarlet flowers, like the old Kaffir Lily (*Schizostylis coccinea*), the newcomer has blossoms of a clear, rich rose-pink. It is a vigorous plant, and the individual flowers appear larger and more widely expanded than the type plant. The Kaffir Lilies thrive in moist spots, but require perfect drainage with plenty of moisture from June to September. They are hardy, but, at the same time they thoroughly enjoy all the sunshine possible. Kaffir Lilies are well worthy of attention, for are they not among the most brilliant of autumn bulbous flowers and invaluable for cutting? They should be planted in spring.

Japanese Azaleas.—Great interest has been awakened by the recent introduction of Japanese or Kurume Azaleas, dwarf and slow-growing little shrubs literally smothered in blossom. They are much hardier than is generally supposed, and do well in a sheltered recess or even in the rock garden, but for greenhouse and conservatory they are unsurpassed. It is not surprising that they are taken up for market work, for as pot plants they have a ready sale. The best varieties are Hinomanyo, Hino-digiri, Hexe, Kokin-Shita, and Amoenum. The colours range through brilliant pink, lavender, and fiery red, and so freely are the flowers produced that the young foliage is hidden from view by the profusion of blossom.

CHAPTER XVII

HARDY LILIES

WITH the possible exception of the Indian Lilies, such as *Lilium Nepalense* and *Lilium sulphureum*, practically all are hardy in this country. Nevertheless we often meet with people who express surprise on seeing blooms of such lovely sorts as *Henryi*, *chalcedonicum*, *regale* and *Martagon album* when they learn that these have been grown unprotected in the open air.

It is a little difficult to lay down a hard and fast rule as to the proper positions in which to plant Lilies, as some may be seen flourishing equally well under totally different surroundings.

The Japanese Lilies, like *auratum*, *speciosum* and their varieties, invariably do well in Rhododendron and Azalea beds, or among low growing shrubs where the stems are shaded from the fierce midday sun; and in no position do they make a more effective display than when backed by the rich, deep green leaves of Rhododendrons.

On the other hand, there are Lilies, such as the White Madonna Lily (*Lilium candidum*), the Tiger Lily (*Lilium tigrinum*) and the Nankeen Lily (*Lilium testaceum*), that are quite at home in the mixed flower border. These border Lilies are best planted in September or October —the earlier the better.

How Deep to Plant.—Plant the bulbs from 6 to 8 inches deep, preferably in groups of not less than three or four bulbs each. The effect is so much

better when Lilies are grouped in colonies than when planted as isolated specimens. All Lilies prefer cool, fairly moist soil, and shade from the hot midday sun. It is essential that the soil should be well drained and deeply worked. During summer Lilies delight in plenty of moisture, but excessive moisture in winter is harmful to the bulbs. When planting in heavy soil it is desirable to surround the bulbs with coarse grit or sand to drain away excessive moisture.

An ideal spot for the magnificent *Lilium giganteum* is an open glade with a small stream running through ; this is a peat and moisture loving Lily and loves a soil well enriched with decayed vegetable matter—e.g. black leaf-soil.

Some Lilies, like the Yellow Turk's Cap (*Lilium pyrenaicum*), delight in shade, the best positions being the open spaces along the shrubbery border and among hardy Ferns. The north border is also a happy home for *Lilium pyrenaicum* ; it does well in places where Lily of the Valley will thrive, and to see a colony of this Lily above and a groundwork of these two plants is a sight to be remembered.

Although most Lilies thrive best in the partial shade and moist atmosphere of a cool woodland, yet we have seen the magnificent *Lilium Henryi* sending up 8 feet spikes of bright orange blossoms in a small walled-in London garden. Lilies are excellent plants for small gardens so long as they are not damaged by animals, for if a Lily is broken down a second time it may not reappear. Lilies well repay all the care that is bestowed upon them, for among hardy border and woodland flowers they have no rival in beauty of form and colour. The time is bound to come soon when they will be appreciated at their true worth.

THE NEWER LILIES

The gardens of England are being enriched by new Lilies sent home from unexplored and remote parts of the world. That distinguished writer and traveller the late Mr. Reginald Farrer has two grand Lilies to his credit—namely, *Lilium centifolium* and *Lilium Farreri*. In his first expedition to China, Mr. Farrer found in a cottage garden a huge trumpet Lily over 6 feet high with upwards of ten or fifteen flowers. It came home as Farrer's Lily 316 and was thought to be *Lilium Browni Kansuense*, but when it flowered it proved to be the new *Lilium centifolium*. It is a giant among Lilies and has proved to be quite hardy, growing freely from seed and commencing to flower in the second or third year. It has been raised from seed in several gardens, notably in that of Major Stern at Hightown, Goring, where, grown on chalk, it attained a height of over 6 feet, with upwards of ten or a dozen flowers, and in the famous garden of Mr. Bowles at Myddelton House, Enfield, it reached a height of 7 feet and bore fifteen flowers. The large, white, tubular flowers are heavily flushed with yellow through the centre and reddish on the outside of the segments. This new Lily is very scarce, for it cannot be chopped up and increased like a Michaelmas Daisy. Those who have this treasure in their gardens should take the greatest care of it. This giant Lily has received the high award of a First Class Certificate from the Royal Horticultural Society.

The other Lily introduced by Farrer—namely, *Lilium Farreri*—was first found in its native Chinese surroundings, and has frequently been referred to by its discoverer as “The Marble Martagon Lily.” It is a slender and graceful plant, reaching a height of 3 to 4 feet, and bearing

on long stems four to six recurved white flowers marked with purple lines and spots. It is a charming plant, though somewhat frail looking.

The Regal Lily.—*Lilium regale* is one of the best of the new Lilies. The flowers are flushed with yellow at the centre, shading to pink at the tips ; the stem is finely clothed with narrow, grassy leaves. This is Wilson's introduction, and it is one of the most glorious Lilies that we have received from China. The great thing about *Lilium regale* is that it is such an excellent garden variety. Seedlings spring up readily and will flower in two years from the time of sowing. It should be planted in a fairly sheltered position and care should be taken to keep it free from the drip of overhanging trees. It thrives and flowers magnificently in cool loam and leaf-mould in partial shade, and it is quite easy to manage. It does not apparently care for peat in the soil. If one new Lily only is to be grown, then let it be *Lilium regale*. It is a flower of most refined and graceful appearance, and what flower can compare with the stately habit and noble outline of this beautiful Lily ? It is the crowning glory of the July border.

Lilium Philippinense Formosanum is equally as beautiful as any of the afore-mentioned and is one that may be raised from seed. In 1921 the flower-loving public were startled by the introduction of this graceful Lily from Formosa. It has long, grass-like foliage and very long, slender trumpets. Both flowers and flower buds are so slender and of such delicate outline that it has the appearance of a thoroughbred. As this Lily was found growing at an altitude of 8,000 feet on Mt. Morrison, it is not surprising that it should prove perfectly hardy in this country. The flowers are

very fragrant, and the long, drooping buds give it a distinction possessed by no other Lily.

Among the numerous stately Lilies there is one other that seems to stand out from all the rest by virtue of its graceful outline and exquisite colouring. The colour of the expanded flower is lemon-yellow, spotted black. It has large, drooping, pear-shaped buds arranged like pendulous bells around a graceful stem. It is a magnificent Lily, rising to a height of 4 or 5 feet, and it has, alas, the misfortune to bear the name *Lilium szovitzianum*! It is as rare as it is beautiful.

Growing Lilies in Pots.—In these days of expensive fuel the question is often asked, "What flowering plants can I grow in the cold greenhouse or conservatory?" For this purpose there is nothing better than the Japanese Lilies, they are of the easiest possible culture and bring forth flowers of the utmost beauty. There are few who have not seen and admired the rare beauty and exquisite form of the numerous Lilies now in cultivation. It was, however, reserved for the first flowering of *Lilium auratum* to take the country by storm and bring the merits of this beautiful group of plants before the notice of the public, yet everyone who has a garden, or a greenhouse, may feast his eyes on one of the most magnificent flowers it is possible to see.

When to Pot the Bulbs.—October is undoubtedly the best month for potting, but as the Japanese bulbs do not usually arrive until January, the potting is often left until the spring. That good results can be obtained from spring potting may be gathered from the following record of a single bulb for three consecutive years. The bulb in question was potted in February and the produce of each bulb was each year repotted by itself. No record was made of the number of flowers



High Summer in the Flower Garden. Climbing Roses, Lilles, Star-Roses and Delphiniums 119 feet.

in the first year, but the three years following one spike produced 16 flowers, four spikes produced 32 flowers and six spikes 134 flowers. One flower spike was 10 feet high and carried 35 flowers.

Nearly all the Lily tribe are of easy cultivation, and auratum and speciosum, with their varieties, are no exception to this rule; for pot culture they are most valuable and they give a richness and character to the greenhouse and conservatory in late summer and autumn; or the pots containing the flowering bulbs may be stood out in paved gardens or courtyards.

Single bulbs of auratum or speciosum may be grown to perfection in 6- or 8-inch pots, or six or more bulbs may be grown in a 13-inch pot. Good, deep, roomy pots are advisable, and the bulbs should be placed low down in the pots, leaving sufficient room to pack rough pieces of turf loam round the young stems as growth proceeds.

The best soil for Lilies is fibrous loam and peat in the proportion of two-thirds of the former to one-third of the latter, with just sufficient silver sand to keep the compost open and porous. Good drainage is, of course, most essential; so that water, of which they are not likely to receive too much in the growing season, may pass through readily.

If the compost is fairly moist, as it should be at the time of potting, no water will be required until growth commences. The pots should either be plunged in cold frames or stood under the greenhouse stage away from drip. If given cold frame treatment it is advisable to cover the pots with coconut fibre, so that they are buried to a depth of 4 inches from the surface as protection against frost. The frame "lights" should be kept off except during frosts or heavy rain. The fibre

should be removed in March, by which time the bulbs, if doing well, should be making roots. Leave the pots in the frame until May, then place them in a sheltered position out of doors. By topdressing with rich loam the foliage is kept fresh and healthy until the end of the season. As soon as the flowers begin to open, the plants may be brought into the conservatory, sitting-room, or placed outside in a sheltered recess to reach their full beauty.

The principal attention in the growing season, apart from watering, is to keep the Lilies securely staked and tied as they develop ; the best and neatest supports for this purpose are bamboo canes of suitable length, and so coloured that they closely resemble the Lily stems.

CHAPTER XVIII

GLADIOLI; OR SWORD LILIES

No plants create a brighter display of colour than Gladioli in late summer and autumn. They may be grown by themselves in bold groups to give masses of colour, or they may be associated with other border flowers. As it is not generally known how extremely well Gladioli may be grouped with other flowers, a few words on this subject may be helpful.

Try and picture for a moment the colour effect of dark leaved Cannas and scarlet Pompon Dahlias mingled with the fiery red of Gladiolus Brenchleyensis rising above a drift of scarlet Salvias and Geraniums. Of course these bedding plants should not be in straight rows and strips as of old, but in irregular groups with the intention of displaying the plants to the best effect for colour. The plants mentioned make a unique spectacle —a blaze of scarlet in which the tones harmonize in splendour. It is a simple colour scheme that may be carried out in any garden.

There are many other flowers that may be associated with Gladioli, such as Antirrhinums which often flower right through October, the tall scarlet Lobelia (*L. cardinalis* and varieties) and the canary-yellow Calceolaria amplexicaulis, while a suitable groundwork of foliage and flower may be provided with Iresine, Gypsophila, variegated Mint, Pyrethrums, Salvias and Geraniums in variety. A very fine effect may be obtained by simply planting the Gladioli in a bed of Gypsophila; the tall,

stately spikes of Gladioli rise above the cloud of Gypsophila with most striking effect.

Those who have not tried growing Gladioli with other flowers should certainly do so, and they will be surprised at the results. It is the most effective way of growing Gladioli, as it takes away their very stiff and formal appearance, such as they present when grown in rows by themselves.

For house decoration the Gladiolus has no equal so long as the colours are well chosen. The flowers on the spike do not all open at one time, the lower ones unfold first, to be followed later and in stages by the buds on the upper portion of the stem. By placing the cut spikes in a cellar, or other dark, cool place, it is possible to have as many as a dozen expanded flowers or more on a spike at the same time ; this method is adopted by many who grow Gladioli for exhibition. The development of the buds goes on when the spikes are cut and placed in water, and the flower spikes, which are cut when the first flowers open, will last in good condition for room decoration for ten days or a fortnight. Surely there are few flowers that last so long and look so gay ! The lower flowers are easily removed as they fade.

Early Gladioli (July flowering).—These beautiful early flowering varieties, of which The Bride, Peach Blossom and Tristis are perhaps the best known varieties, are invaluable for pot cultivation as well as for borders. They force readily and may be had in flower from the end of April to the end of July. Their rich colours and the vivid markings on the lower petals are always much admired. These Gladioli are best planted in autumn in light soil and given slight protection with litter during very sharp frosts. For use in the conservatory, plant



Perennial Larkspur (*Delphinium*) and *Gypsophila paniculata* in the Flower Border.

three to four corms in a 6-inch pot and plunge the latter in ashes to the rim in a cold frame, or under a warm south wall, covering with litter in severe weather. When the plants have made about 4 inches of growth, remove them to a cool greenhouse and give weak liquid manure about every ten days.

Planting Gladioli.—The bulbs, or corms, as they are correctly termed, of late summer Gladioli should be planted any time from the middle of February to the end of May. By planting at intervals between these dates, it is possible to obtain a succession of flowers from August to October. Plant to a depth of 3 to 5 inches according to the nature of the soil: the lighter the soil the deeper should they be planted. When planting in borders it is better to arrange them in clumps rather than in rows. Plant the corms about 6 inches apart in well-drained soil, and, above all things, see that the corms are not in actual contact with fresh or green manure. Providing the soil is "in good heart" and has been well "worked," it should be in condition for planting without the application of manure. If the soil needs manure, there is nothing better than bone-meal or bone-flour. A handful of strained bone meal to the square yard is highly beneficial to these plants and, indeed, to all bulbous plants, and it should be applied at the time of planting. The Gladiolus loves a sunny, open position, and the best corms are produced in sandy soil, but equally good flower spikes are obtainable in heavy ground. They are not a success under the shade of overhanging trees.

When planting in heavy soil it is a good plan to put an inch of coarse sand under the corms, and, if sufficient sand is available, to surround each corm with

this substance. It is interesting to note that all successful growers and exhibitors of Gladioli on heavy soils adopt this practice. With very choice and expensive varieties it is worth while covering the corms with light potting compost. However, Gladioli are not fastidious about soil. They thrive and flower well in almost any kind of garden soil and even under most unfavourable conditions, but they pay for the better treatment as outlined above. From the expressions of surprise that we hear it is all too apparent that many garden lovers are unaware how beautiful the late flowering Gladioli are. Everybody knows the perfect colouring of Darwin Tulips. Here are flowers just as easily grown, lasting twice as long and equally good in colour.

After planting there is really little to do beyond staking the plants to make them secure against damage by high winds, if in an exposed position, and taking ordinary precautions to see that the ground does not dry out.

Lifting the Roots in Autumn.—Lift the corms in late autumn on the arrival of frosts (there is no need to wait for the foliage to die down) and store in a cool, dry shed until planting time comes round again. If there is no sign of frost, lifting may be deferred until December.

Nothing could be simpler than the cultivation of Gladioli, and in return for very little care they produce a wealth of bloom and a wide range of extremely beautiful colours late in the season when the display of flower beds and borders is on the decline. As a rule, the indiscriminate planting of mixed Gladioli is not to be recommended, because, while they are useful for cutting, their unknown colouring leads to hesitation in planting in places where a definite colour is required.

Varieties within the reach of all.—There are over 1,000 named varieties of late flowering Gladioli in commerce. Those who desire to grow these lovely flowers for garden effect and cutting will find all they require in the following selection, arranged in their colours.

Shades of Pink. America ; Mrs Frank Pendleton, Junr., with handsome dark blotch ; Ruffled Gem, soft blush, of the new waved or ruffled type ; Le Maréchal Foch, light pink, exceptionally good ; Halley, salmon ; Pink Beauty, deep pink ; Pink Perfection, clear soft pink ; Prince of Wales, salmon with touch of yellow ; Willy Wigman, blush with crimson blotch.

Shades of Red. Chris, dark crimson ; Mrs. Francis King, intense flame scarlet ; this variety, named in honour of a keen American amateur gardener, is a great favourite ; Brenchleyensis, the invaluable old scarlet, still unsurpassed for massing and broad effects ; Princeps, rich scarlet ; Red Emperor, bold scarlet ; and War, deep blood red.

Shades of Purple. Blue Jay and Baron Joseph Hulot, the two finest of the so-called "blue" Gladioli ; Master Wietse, magenta purple ; Nora, violet and lavender ; and Bleu Celeste, violet-blue.

White. Europa, L'Immaculée and White Giant.

Shades of Yellow. Loveliness, cream ; Swabia, the largest canary-yellow ; Annie Wigman ; Niagara, nankeen-yellow.

Growing Gladioli from Seed.—A good deal of attention is being devoted to the raising of Gladioli from seed ; while some are able to flower Gladioli in seven months from the time of sowing, others have not flowered their seedlings under three years ! To flower the seedlings in the shortest space of time the seed is sown in pots or boxes in heat in February or March. The

seedlings are treated just as early sown Onions and given such treatment. It is found that growing Gladioli from seed is a speedier proposition than growing ordinary biennial plants, which are grown from seed in almost every garden.

Gladioli seed germinates, even in the open, as readily as Mustard and Cress, and may be sown in a prepared bed of fine, rich soil in spring. The young corms should be lifted after the first frost in autumn and wintered in a frost-proof shed. With anything like good luck, these corms (if re-planted the following March) should flower the same summer. What possibilities this subject opens up! Growing Gladioli from seed is a game of chance ; it is very fascinating, as one never knows what colour the seedlings will turn out.

Gladiolus Primulinus ("The Maid of the Mist").—About thirty years ago a very beautiful Gladiolus was found growing wild under the spray of the Victoria Falls on the Zambesi River, and seemed to thrive there notwithstanding the deluge of water which very soon soaked the discoverer when obtaining the flowers. Colonies of this Gladiolus were found growing in one of the wettest positions near the Falls ; and several bulbs or corms were distributed in this country among nursery-men and in botanic gardens. The flowers of this Gladiolus are of soft primrose-yellow, and they are so constructed that the upper petals form a protecting hood over the stamens and centre of the flower. This hood is a special form of protection to the anthers and style against spray and humid atmosphere. Many plant lovers are greatly impressed by the form and simple beauty of the flowers of this Gladiolus, which is botanically known as *Gladiolus Primulinus*. The popular, and very appropriate, name for this flower is "The Maid



A formal Flower Garden in Spring. The beds are filled with *Polyanthus*, *Wallflower*, *Tulip* and *Forget-me-not*.

of the Mist." Each year since the advent of this species has witnessed remarkable developments, for, as would naturally be supposed, no time was lost in setting to work on a flower which showed such new and charming characteristics.

A New Race of Gladiolus.—This *Gladiolus* is the forerunner of a new and very lovely race of hybrids, known as *Primulinus* hybrids. The flowers of the new race possess graceful form and extremely beautiful shades of colour ranging through lemon-yellow, salmon, orange and orange-scarlet, all lovely "art" shades. The new hybrids require the same cultivation as recommended for other *Gladioli*. Those who are anxious to secure corms of good *Gladiolus Primulinus* hybrids might make a selection from the following: Atalanta, Golden Girl, Maiden's Blush, Woodcote, Orange Brilliant, Yellow Queen, Thecla, Early Morn, Phyllis Kelway and Vanessa. The *Primulinus* hybrids are very charming when mixed, as all the orange-red and yellow shades associate harmoniously.

CHAPTER XIX

SWEET PEAS

SWEET PEAS are so valuable for decorative purposes and provide such a delightful display throughout several months in the garden that their strong appeal to flower lovers is easily understood. They are the finest annuals in cultivation, but like all others of that class, they must be grown well; under indifferent treatment the flower stems are short, the blooms are small and their season is a comparatively short one, coming to an end with the hot, dry weather.

Those who only practise ordinary methods of cultivation must not expect to obtain such magnificent flowers as those exhibited at shows, for not only are these given special cultivation, but the flowers are protected from the weather by means of tiffany shading. Nevertheless, by taking a little care, it is possible to have Sweet Pea plants that will remain in bloom throughout the greater part of the summer and yield long-stemmed sprays of blooms, three to four flowers on a stem.

The First Essential is deeply cultivated soil. In autumn, a trench should be dug in cultivated ground to the depth of 2 to 3 feet. Manure is dug freely into the bottom of the trench and as much of the excavated soil is returned as will fill half the remaining space. In digging out the soil care should be taken to keep the upper soil separate from the lower soil, so that the latter can be filled in first. A further supply of yard manure

may with advantage be forked into the soil returned to the trench. The latter is then filled to within 6 inches or so of the top and a scattering of lime or basic slag is given. By spring the soil in the trench will have settled down and a further supply will be required to bring it level with the surface ; with this, some bone-meal, wood ashes and soot may be mixed with advantage. Excellent Sweet Peas can be grown without quite such elaborate preparation, but it should not be forgotten that the quality of the flowers will depend largely on the depth of the cultivated soil.

When to Sow.—The seeds may be sown out of doors or in pots in a frame, in autumn ; in pots in a greenhouse or frame in January ; or out of doors late in February or in March. Plants from an autumn sowing provide the earliest blooms ; these may be expected to open towards the end of May and early in June. Spring-sown plants will start to flower late in June or early in July according to whether they are sown under glass or out of doors.

Autumn-sown Sweet Peas.—On light or reasonably well-drained ground the seeds may be sown out of doors where the plants are to bloom ; they should be put at about 6 inches apart, any blanks being made good by means of surplus plants raised in flower-pots under glass. On heavy, clayey land it is not wise to make an out-of-door sowing in autumn. The seeds should be sown singly in small flower-pots of sifted sandy soil, or several in larger pots (those 5 or 6 inches wide are suitable) or in boxes. A cold frame or unheated greenhouse is a proper place for them during the winter months, they need no warmth, merely protection from excessive wet, keen wind and severe cold. The soil compost to use consists of sifted loamy soil with which a little leaf-

mould and a free sprinkling of sand are mixed. The seeds are covered with rather more than half an inch of soil.

As soon as sowing is finished the soil should be thoroughly moistened. Great care is necessary not to over-water during the winter months; probably once a fortnight will be often enough. When the soil is moderately dry it should be moistened thoroughly, and not watered again until it is fairly dry.

Winter Treatment.—The seedlings will probably show through the soil in three or four weeks, if sown during the third week or fourth week in September, which is the best time. Stirring the soil occasionally with a small pointed stick prevents it from becoming sodden, and helps to maintain the seedlings in a healthy condition. The frame or greenhouse must be ventilated freely in mild weather for the purpose of keeping the seedlings as sturdy as possible. By spring they will be well rooted and towards the end of March they should be planted out of doors.

Sowing in January.—Sweet Peas raised from seed sown in the middle of January need exactly similar treatment; they will be ready to be planted out in April. Some of the best growers wash all the soil away from the roots before planting out the seedlings, and I believe this practice to be a good one, for it enables the roots to be spread out.

When the seedlings are 4 inches or so high their tops should be pinched off; the effect of doing that is to force the development of other shoots from the base of the plants, and these bear finer flowers than the original shoot would have done. The number of fresh shoots obtained will vary from one to three.

Seedlings raised either in autumn or in spring under



An Edging of Mossy Saxifrage (*Saxifraga hypnoides*).

glass should be planted at about 6 inches apart if the flowers are for ordinary garden decoration; if for exhibition, the seedlings should be at 9 to 12 inches apart.

Each plant must be restricted to from one to three stems—the weak growers to one stem, the strong growers to two or even three stems—if blooms of the highest quality are wanted, each stem being trained to a bamboo cane, and all side shoots removed as they appear. The effect of this is to concentrate the vigour of the plant and to ensure long-stemmed blooms of large size and four or five on each stem. But few amateurs, unless they intend to exhibit Sweet Peas, are prepared to go to so much trouble. Ordinary pea sticks as tall as possible should be used as supports for the plants, a few twiggy ones being first inserted round about them to give them a start. Once the seedlings are allowed to fall down owing to lack of something to cling to, they rarely make good plants. Some means must be devised to keep away birds—black cotton stretched among the sticks or a covering of netting is as good as anything.

Syringeing the plants in the evenings of warm days encourages growth, and an application of sulphate of ammonia three parts, and superphosphate of lime five parts, applied to the soil alongside the plants at the rate of two ounces per square yard, will be beneficial.

Sowing Out of Doors.—Towards the end of February or early in March Sweet Peas may be sown out of doors. It is a great advantage to have the site prepared in autumn in the way already explained. The seeds should be placed about an inch deep and 3 or 4 inches apart; if in a double row the lines should be 9 to 12 inches from each other.

Sweet Peas are often grown in clumps or circular

groups in the herbaceous border where they add materially to the flower display, for if the plants are well grown and faded blooms are removed they remain gay for many weeks.

The Best Sweet Peas.—Some of the best modern frilled varieties are the following: Advance, pale rose-pink; Annie Ireland, white with pink edge; Colne Valley, lavender blue; Constance Hinton, white; Charity, crimson; Dignity, cream-pink; Edna May Improved, white; Giant Attraction, cream-pink; Gladys, lilac; Gloriosa, orange-scarlet; Hawlmark Pink; King Mauve, rose mauve; Majestic Cream; Mrs. Hitchcock, pale salmon-pink; Mrs. T. Jones, blue; Picture, rose-pink and cream; Royal Purple; Royal Scot, scarlet; R. F. Felton, lilac grey; The President, orange-scarlet; Warrior, maroon.

CHAPTER XX

HARDY AND HALF-HARDY ANNUALS

IT is curious how the average gardener, amateur and professional, consistently ignores many of the loveliest hardy annuals, yet expends much time and labour on half-hardy plants that are no more decorative, yet cost so much more to grow. With the exception of Mignonette, Poppy, Nigella, and Sweet Peas, hardy annuals are not well represented in amateurs' gardens, yet where a full and intelligent use is made of these simple plants, wonderful and striking displays are annually enjoyed. I shall never forget a large circular bed in the gardens at Maxwelton House, Dumfriesshire, which for many years was filled with only hardy annuals. They were arranged in an informal way, being sown in patches of various sizes and shapes. At the proper time they were thinned, and any requiring support were duly staked, but the majority were of kinds that did not require this attention. Pleasing schemes can be carried out with hardy annuals in the herbaceous borders. In the vacant spaces, or rather the places occupied by early bulbs and plants which leave unsightly gaps when the foliage dies down, a few seeds should be scattered and the seedlings carefully tended until large enough to fend for themselves. Such kinds as *Chrysanthemum carinatum*, *C. coronarium*, *Clarkia*, *Coreopsis*, *Godetia*, *Larkspur*, *Linaria*, *Linum*, *Lupin*, *Malope*, *Nemophila*, *Nigella*, *Poppy*, and *Viscaria* are the kinds to use.

What some enthusiasts have done, others may do,

not necessarily in the same fashion, but to suit their own special mode of gardening and their own tastes.

Most hardy annuals thrive best on comparatively poor ground. Richly manured soil, indeed, is the worst possible site in which to grow these plants, or, at least, the majority of them. Some, like the Californian Poppy (*Eschscholtzia Californica*) Nasturtium, Godetia, Cornflower, Clarkia, etc., give far finer flowers when grown on poor ground. Larkspur, Mignonette and Sweet Peas, on the other hand, must have richly manured soil. For hardy annuals, generally, the ground should be deeply dug and well broken up, and no manure need be used. For Mignonette a fairly rich soil, to which is added some mortar rubbish from an old building, is suitable. This should be made firm before the seeds are sown. Sweet Peas, of course, demand specially prepared ground. This must be trenched from 2 to 3 feet deep, a fair dressing of manure being well mixed with the soil as the work proceeds. None of the manure, however, should be so near the surface as to come in contact with the roots at planting time. The trenching should be done during late autumn or in the winter, leaving the surface as rough as possible. Early in spring the surface should be sprinkled with soot and bone-meal, and be lightly forked over. Sweet Peas dislike loose ground, so, should trenching for any reason be deferred till spring, it will be necessary to tread the soil before planting takes place.

Sowing the Seeds.—During dry weather, about the middle of April, is a good time to sow most of the hardy annuals, although three weeks later will be early enough for Nasturtiums. The ground, for all kinds, should first be lightly forked over, all lumps being broken and then the whole surface made fine and



Borders of Autumn Flowers—Moon Daisy (tall plant on left) and Phlox are conspicuous.

level with a wooden rake. It is best to sow in rows, for unless this is done, the great advantage the young plants derive from frequent hoeing is lost, and there is considerably more trouble in keeping down weeds if broadcast sowing is practised.

How Deep to Sow.—The seeds vary so much in size that no hard and fast rule can be laid down as regards depth to sow. Sweet Peas may be 1 to 2 inches below the surface, while Poppy seed is scattered on the soil and lightly raked in, or a little fine soil is sprinkled over them. The safest plan, therefore, is to judge the depth by the size of the seeds. Lupins and Nasturtiums should be from 1 to 2 inches deep, Candytuft and Linum about an inch deep, while Eschscholtzia and Mignonette should be less than half-an-inch and Linaria just covered. The finer the seed the nearer the surface it must be, and the larger the seed the deeper it is sown. After sowing and covering the seeds, rake the surface very lightly, and always in the same direction as the rows run. If the ground is raked across the lines, there is always the fear of displacing and mixing the kinds with the teeth of the rake. Label every kind carefully, for many are very similar in appearance while in a small state.

Thinning the Seedlings.—This is the rock on which many growers wreck their chance of success. Too many never think of thinning at all, with the result that the display is disappointing. As soon as the seedlings can be seen a Dutch hoe should be run up between the rows, and so kill weeds and encourage sturdy growth. As soon as the little plants get large enough to handle, a preliminary thinning should be undertaken. That is to say, the rows should be partially thinned, the larger kinds being left 4 to 5 inches apart

and the dwarf kinds 2 to 3 inches asunder. This is more troublesome than it would be to do all the thinning at one time, after the plants got bigger, but the results are so satisfactory that everyone who once adopts it, soon notices the improvement in the size of the flowers and the greatly lengthened period the plants remain decorative. Also, there is much less chance of losses by slugs, etc., for when the little plants are left fairly close at first, these pests have less chance of really spoiling the rows, than if the plants were thinned down to the proper distance the first time.

In due course the remaining seedlings will begin to crowd each other, and it is then that the principal and final thinning should be undertaken. Before one can do this properly it is necessary to have some little knowledge of the size of the plants at flowering time.

In the following selection of hardy annuals the height of the plant is given in inches.

Adonis (12 inches).—A very showy scarlet-flowered plant. Thin to 6 inches apart.

Bartonia aurea (18 inches).—A good yellow flower for a sunny spot: 9 inches apart.

Calendula officinalis plena (24 inches).—The double Scotch Marigold. The best variety is Orange King, a very showy plant for large beds: 12 inches apart.

Candytuft (12 inches).—This pretty plant may be had in several colours: 6 inches apart.

Chrysanthemum Burridgeanum (24 inches).—A very good plant for cut flowers, and for making a showy bed in the garden: 9 inches apart.

Clarkia (24 inches).—One of the best annuals when well grown. There are several distinct and pleasing colours: 9 inches apart.

Convolvulus minor (12 inches).—A pretty, large-flowered plant, with flowers of various shades : 6 inches apart.

Coreopsis (12 to 24 inches).—Fine red or yellow flowers, much in demand for cutting : 9 inches apart.

Cyanus (27 inches).—The blue form of the Cornflower is the most desirable, although other shades are also quite pleasing ; 6 to 9 inches apart.

Eschscholtzia Californica (9 to 12 inches).—These gorgeous flowers, if picked just when they begin to open, are most useful for dinner-table decoration. Some of the newer sorts are great improvements on the type ; 6 or 7 inches apart.

Godetia (12 to 21 inches).—There are some fine colours in these flowers, the plants being very graceful ; 6 inches apart.

Hawkweed (15 inches).—The pink form is the most desirable and makes a pretty bed ; 6 inches apart.

Kaulfussia amelloides (6 inches).—A pretty blue edging plant ; 3 inches apart.

Linaria (12 inches).—Pretty little Antirrhinum-like flowers, in several colours ; 6 inches apart.

Linum grandiflorum rubrum (12 inches).—Brilliant red flowers ; 6 inches apart.

Love-lies-bleeding (24 inches).—A very interesting annual plant with long pendulous flower bunches, in colour not unlike the Cockscomb ; 9 to 12 inches apart.

Malope (2 to 3 feet).—Handsome plants for large beds ; 9 to 12 inches apart.

Mignonette (12 to 18 inches).—If thinned out to 9 inches apart this fragrant annual is very fine indeed.

Nemophila (6 inches).—Very beautiful as an edging or in small beds by itself ; 4 to 6 inches apart

Nigella (18 inches).—The finest variety is Miss Jekyll. Used in conjunction with *Eschscholtzia Mandarin*, a very beautiful effect may be had ; 6 to 9 inches apart.

Poppy (15 to 30 inches).—There are some wonderfully fine things among the annual Poppies, some of the best being, The Shirley, The Mikado, The Admiral, The Cardinal, Umbrosum and White Swan ; 9 inches apart.

Virginian Stock (6 inches).—These dwarf annuals often succeed, if well thinned, where many other kinds would fail ; 3 or 4 inches apart.

Viscaria (12 inches).—Elegant and brilliant for massing, *cardinalis* being the most showy ; 4 to 6 inches apart.

Half Hardy Annuals.—These, which comprise many delightful and indispensable flowers, are raised from seeds sown in a frame or greenhouse in March, or out of doors in April and May. Some of the chief kinds are Stock, Aster, *Kochia scoparia* (Burning Bush), *Phlox Drummondii*, Scabious, *Nemesia*, *Salpiglossis*, African and French Marigolds, Marguerite Carnations, *Cosmea*, *Dimorphotheca* (Star of the Veldt), *Nicotiana* (Tobacco Flower), and Zinnia. They are easily grown from seeds sown thinly in boxes of fine soil in a cold or slightly heated glasshouse or frame, and if transplanted at greater distances apart to other boxes before they become crowded, and grown as hardily as possible, they will be ready to plant out of doors in late spring. This trouble may be avoided by sowing the seeds out of doors in April or May where the plants are to bloom, though they will not, of course, come into flower so early as those raised under glass.

CHAPTER XXI

CLIMBING PLANTS

CLIMBING plants have an interest for all of us, for every garden has its walls and fences. Is not the chief charm of a garden found in its privacy, and does not the word garden itself imply a space that is enclosed? Climbing plants are so varied in the time and manner of their flowering, and in their degree of hardiness, that some may be found that are suitable for walls and fences of any aspect. Some thrive better when grown in the open garden, supported by pillar or arch, for on a wall they are subject to the attacks of several pests which disfigure their leaves and stunt their growth.

Hardy perennial climbing plants may be considered most conveniently according to the aspect for which they are best suited, whether north, south, east or west.

For a Wall or Fence Facing North.—A wall or fence facing north is the most difficult to deal with, for most plants love the sunshine and many of them will not thrive in the shade. Fortunately some climbing plants prefer the cool and shady side of a wall, though one can never hope to have it as gay as the sunny side. No plant loves the sunshine more than the Rose, but a few varieties do fairly well on a shady wall. This cannot be said to be the best place for them, and if planted there the grower must realise that while they will do fairly well they will provide a richer harvest of blossom on a sunny wall or in the open garden.

If we want only two Roses for the north wall we

cannot do better than choose Gloire de Dijon and Reine Marie Henriette, which is so similar in all respects save the colour of its flowers, that it is frequently called the "red Gloire de Dijon." These are essentially Roses for a wall ; they are of orderly growth and can be kept neat and correctly trained without difficulty. Another Rose that may be grown on the north wall is the old evergreen variety Felicité Perpétue ; its scented flowers are white and, though small, are produced freely in bunches. This Rose grows more vigorously than the two already mentioned, so that its symmetrical training on the wall face is difficult.

For planting on a north border, Conrad Meyer, which produces thorny branches 10 feet high, is valuable. It flowers in May and June and gives little blossom afterwards : the blooms are full, rose coloured and fragrant. The Japanese Briars, to which Conrad Meyer is closely related, make strong thorny bushes that in June bear large single blossoms of rose or white, and in autumn are gay with well coloured fruits ; they also are useful for planting on a north border.

Among flowering shrubs, especially those that bloom in spring, there are several suitable for the north wall. There are the winter Jessamine (*Jasminum nudiflorum*) and the Golden Bell (*Forsythia suspensa*), which, if associated with yellow-leaved Ivy, flood the shady wall with artificial sunshine. Hydrangea petiolaris, a climbing shrub from Japan with handsome green leaves and flat bunches of white flowers in summer, will thrive on the north wall. It is self-clinging by means of aerial roots.

The Traveller's Joy (*Clematis Vitalba*) is a fine plant for a north fence, but it is hopeless to attempt to train it on a wall. The Virgin's Bower (*Clematis flammula*),

which bears creamy white bloom in July and August, is also to be recommended for a similar position. The double-flowered variety of Jew's Mallow (*Kerria japonica*) may be planted on a north wall, though it cannot be trained very symmetrically. *Polygonum baldschuanicum*, a rampant climber which bears cream-coloured blossom in May and again in late summer, will thrive on a north fence, though this cannot be trained ; it must be allowed to grow as it will.

Of plants grown for the sake of their leaves, there are none better than the Ivies for the north wall. The evergreen Firethorn (*Crataegus Pyracantha*) is valuable for clothing a north wall, but it cannot be depended on to produce fruits freely in that position.

For a Wall or Fence Facing South.—There are many Roses that will thrive on a wall facing south, and there are also some that are not happy there—those of the Rambler class ; they prefer to be in the open garden, trained over an arch, pergola or trellis. On a hot wall they are subject to the attacks of aphid and other pests and often fail. Tea and Hybrid Tea Roses that are too tender to be planted in the open garden will thrive on a south wall. Among them are Madame Hector Leuilliot, Duchesse d'Auerstadt, Devoniensis, Lamarque, Madame Bérard, Beryl, L'Idéal and the yellow Banksian. The large-flowered varieties of Clematis may also be planted on a south wall, though in southern gardens, at all events, they are better suited by one facing west. The Winter Sweet (*Chimonanthus fragrans*) should be planted on the south wall because there it is one of the earliest winter flowers to open. Among other early blooming shrubs there are few to surpass that ornamental Plum (*Prunus triloba*) that smothers itself in pink blossom in April. Of the Ceanothus, most

of which have flowers of some shade of blue, several are seen at their best on a south wall. One of the least common is *Ceanothus papillosus*. It bears light blue flowers in April and May. *Ceanothus rigidus*, with deep blue blossoms, and the Californian Lilac (*Ceanothus thyrsiflorus*) are other fine plants for the south wall.

Two beautiful flowering shrubs that benefit by the shelter of a wall are *Escallonia macrantha*, which has pinkish blooms, and *Escallonia exoniensis*, with white flowers. *Choisya ternata*, the Mexican Orange Blossom, with deep green leaves and bunches of white, fragrant flowers in summer, is never finer than on a south wall, though in mild districts such shelter is not essential.

Buddleia variabilis is a fine wall shrub bearing long bunches of lilac-purple blossoms ; it should be planted against a wall in cold districts. The Passion Flower (*Passiflora caerulea*) is a plant that everyone knows by name at least, but as an outdoor plant it is not very familiar. On a south wall it is perfectly happy and produces its wonderful blooms, which in turn will give rise to quaint orange coloured, egg-shaped fruits.

All who know something of the gardens of Italy and Southern France will recall with delight the luxuriance of the *Bignonia* that drapes the picturesque villas there. We may grow one of the *Bignonias* (*Bignonia capreolata*) on a south wall ; it bears orange brown flowers. *Berberidopsis corallina*, having pretty coral-red flowers, *Abelia chinensis*, pinkish white flowers in summer, and *Abelia floribunda*, rose purple flowers in spring, are other good flowering shrubs for the south wall. *Magnolia grandiflora* is a vigorous shrub or tree with handsome, evergreen leaves, and bearing in August large, cream-white, fragrant blooms. It should be planted against a south wall.



Rose Gloire de Dijon in wonderful bloom on a house front,

For Walls or Fences Facing East and West.—

Climbing plants that thrive on a west wall may be selected from those recommended for a south wall, and those mentioned as likely to thrive facing north will have a still better chance on a wall facing east. On the west wall, however, some of the Clematises should also be planted, as well as *Azara microphylla*, a shrub with small evergreen leaves and inconspicuous flowers which are succeeded by orange coloured berries. *Garrya elliptica* is a shrub to be recommended for the west wall; the male or catkin-bearing form alone is ornamental. It blooms in early spring. Of Roses for a wall facing west, *Madame Alfred Carrière*, *W. A. Richardson* and *Florence H. Veitch* are valuable. On a wall facing east one may plant the Roses recommended for the north wall, together with *Aimée Vibert* and Climbing *Caroline Testout*.

CHAPTER XXII

CARNATIONS ALL THE YEAR ROUND

IT is possible to obtain Carnations throughout the year by cultivating three types, namely Border, Perpetual Flowering Border and Perpetual Flowering. Of these the Border Carnation blooms out of doors in July and August ; the Perpetual Border Carnation flowers in summer and in autumn, and if the plants are then potted and placed in a greenhouse from which frost is excluded, they will continue to bloom for some time longer. The Perpetual Flowering Carnation is a greenhouse plant ; there it flowers splendidly during the winter and spring months. If the plants are put out of doors in beds and borders for the summer they will continue to flower (as also they will do under glass), though the plants become rather tall and straggling in growth.

The Border Carnation.—So far as perfect form of bloom, fragrance and beauty of colouring are concerned the Border Carnation is still unrivalled ; it is of sturdier and more compact growth than the other types. For these reasons, and despite its comparatively short season of flowering, it remains a general favourite. Although most people imagine that the Border Carnation blooms for two or three weeks only, their belief is doubtless due to their having grown the plants fresh from layers every year. If the Carnations are allowed to remain undisturbed for three or even four years, their season of blossom is prolonged and there is no comparison between the quantity of bloom produced from plants

that are two or three years old and have not been disturbed since they were planted, and those that are giving their first flowers. The young plants will probably bear only one flowering stem each, while stems on the older plants can be counted by the dozen. It is a mistake to treat Border Carnations as annuals ; they are good perennials in ordinarily well-drained ground, and are not seen at their best if grown fresh every year from layers.

Border Carnations are increased by layering the shoots in July, those that can be brought to the ground most conveniently being chosen. The lowest leaves are pulled off and a slit is made in the stem by thrusting the knife-blade through the middle and bringing it out half an inch or so below, thus slitting the stem half way through. The soil round about the old plant is broken up with a handfork, some sifted soil and sand are mixed in and each layer is fixed firmly in the compost by means of a small wire pin or a hair-pin, and in such a way that the slit part remains open, for it is there that roots will form. If the soil is kept moist, the rooted layers will be ready to take up in early October, when they may be planted out at from 15 to 18 inches apart to form a Carnation bed.

Border Carnations will thrive in ordinary garden soil if it is deeply dug, and if a sprinkling of lime, some mortar rubble and a little decayed manure are mixed with it ; they dislike ground that becomes sodden in winter. In early summer the flowering stems will begin to appear and must be supported in good time with thin bamboo sticks, or by the special coil sticks sold for the purpose. Care should be taken not to use sticks that are too short, otherwise many of the blooms will be unsupported and will not be seen to advantage. The sticks ought to be not less than 2 to $2\frac{1}{2}$ feet out of the ground. If the ground has been well prepared there

will be no need to apply artificial fertilizer beyond a sprinkling of bone-meal in early spring.

Selection of Border Carnations.—Many splendid varieties have been raised during the last few years and most of them excel in vigour and beauty the older ones. A selection of the best present-day varieties is : Akbar, apricot shade ; Bookham Clove, crimson ; Bookham White, white ; Border Yellow, yellow ; Cardinal, scarlet ; Centurion, marked with red on yellow ; Daisy Walker, white marked with rose ; Fujiyama, scarlet ; Grey Douglas, heliotrope grey ; Gordon Douglas, crimson ; J. J. Keen, yellow marked with rose ; Lord Kitchener, red markings on white ground ; Mrs. Brotherston, white marked with rose-crimson ; Pink Clove, rose-pink ; Purple Clove, purple ; Rosetta, rose.

The Perpetual Border Carnation is a comparatively new type ; it is the result of crossing the ordinary Border Carnation with the Perpetual Flowering sort. The plants bear a good deal of resemblance to those of the latter class in their somewhat tall and loose habit of growth, but the blooms of some of the latest varieties are of good form and show considerable variety of colouring. Their great charm is that they are continuous flowering ; even until Christmas the buds will continue to open if the weather is mild. They may be increased by layering in July or by cuttings in autumn. The cuttings form roots most readily in pots or boxes of sand placed in a frame or cool greenhouse.

Selection of Perpetual Border Carnations.—A few excellent varieties are : Avondale, salmon-pink ; Highland Lassie, white with red margin ; Rosalind, yellow marked with red ; Sussex Beauty, pale mauve and salmon-rose ; Sussex Bizarre, pale salmon marked with heliotrope ; Sussex Perfection, marked with red on white.



Torch Lily, or Red Hot Poker (*Kniphofia*), by the Waterside.

The Perpetual Flowering Carnation.—It is chiefly as a greenhouse flower that the Perpetual Flowering Carnation is valuable, and there it is indispensable, for it will provide a succession of blooms from autumn until spring if a temperature of not less than 50 degrees can be maintained. In or near large towns the plants do not bloom so freely in the dull winter weather as they do in the country. The glasshouse must be ventilated freely every day except during frost, for the plants are really hardy; they must not be treated as hothouse plants, or failure is almost certain. They soon become attacked by disease if grown in a close and too moist atmosphere.

They are increased in autumn and early spring by means of cuttings; these are made from shoots that develop towards the middle of the stems. When the lower leaves have been trimmed off, the cuttings are inserted in boxes filled with silver sand, these being placed on the hot-water pipes. The sand must be watered frequently to keep it moist; if that condition is maintained, the warmth beneath the boxes will induce the cuttings to form roots rapidly and in the course of six weeks or so they will be ready to be potted singly in small pots. Subsequent treatment consists in repotting the plants as becomes necessary until they are in 5- or 6-inch pots. The top of the small plant must be pinched out when it is nicely rooted in the small pot to induce it to branch out, and the shoots that form must in turn be "stopped" once more. "Stopping," however, should not be practised after the end of June or it will delay the flowering of the plants.

Selection of Perpetual Carnations.—Good varieties are: Aviator, scarlet; Benora, white, marked with red; Carola, crimson; Cupid, light salmon; Edward Allwood, scarlet; Enchantress Supreme, pale salmon;

Jazz, yellow with reddish markings ; Laddie, pale salmon ; Maine Sunshine, yellow ; Mrs. Ward, cerise ; Tarzan, scarlet ; Topsy, crimson ; White Pearl, white ; Wivelsfield Apricot, apricot shades.

The Allwoodii Pinks, which may be appropriately mentioned in this chapter, are delightful hardy plants that bloom throughout the summer and are very decorative. The flowers resemble those of the old-fashioned Pink and are fragrant ; the plants vary in height from 8 or 10 inches to 18 inches. These perpetual-flowering Pinks are the result of crossing the old-fashioned Pinks with the Perpetual Flowering Carnations ; while the flowering season has been lengthened, the form and fragrance of the flowers have been preserved. They are flowers for every garden, large or small, in town or in country, and will thrive in ordinary soil. They may be planted in autumn or spring, preferably in autumn, for they are quite hardy. They are increased by means of cuttings in summer or by layering, as is done with Border Carnations. The cuttings should be placed in pots of sandy soil and kept in a frame. The frame must be closed for a few weeks except for a little ventilation daily, until they are rooted. The old plants may be left undisturbed for two years, but it is then advisable to renew them from cuttings, as they become straggling and lose the compactness that characterizes young plants of most varieties. In the second year it pays to cut the plants back fairly hard.

Selection of Allwoodii Pinks.—The following form a selection of the best varieties : Arthur, reddish maroon ; Betty, white with dark centre ; Harold, double white ; Jean, white with violent mauve centre ; Joan, salmon-pink with maroon centre ; Mary, rose-pink ; Rufus, rose ; Susan, pale lilac with dark centre ; Sybil, light pink.

CHAPTER XXIII

BEAUTIFUL HARDY BULB FLOWERS

INCLUDED in this chapter are not only the true bulb plants but others of which the roots are tubers, as the Dahlia and Anemone, and corms, as Crocus and Montbretia.

Most bulbs are planted in autumn ; some, however, are planted in spring and others in summer, and probably the most helpful classification is to deal with the bulbs according to the period in which they ought to be planted.

Most kinds of bulb plants need deep, loamy soil, free from fresh manure ; at least they thrive best in soil of that kind. However, like most other garden plants, they are accommodating, and may be expected to give satisfaction in any ordinary soil that has been deeply dug. It is an advantage to mix in some well-decayed manure if this is kept to a depth of 12 inches or so, but fresh manure ought not to be used. Of artificial fertilizers, probably the best suited to bulb growing is bone-meal. A scattering of this should be given on the surface after the soil has been dug, and should be lightly turned in with a garden fork.

BULBS TO PLANT IN AUTUMN

Allium (Ornamental Onion).—The most generally useful kind is *Allium neapolitanum* which grows about 15 inches high and bears white flowers with green centres. The Golden Garlic (*Allium Moly*) bears yellow flowers in May.

Alstroemeria (Peruvian Lily).—Handsome plants which bear richly coloured blooms in the summer months. They need well-drained soil and a sunny, sheltered position, and should not be disturbed, as they become established rather slowly. *Alstroemeria chilensis*, *psittacina* and *aurantiaca* are some of the best sorts. Orange and red are the prevailing shades.

Anemone (Windflower).—Two of the loveliest flowers of spring are *Anemone apennina* and *A. Robinsoniana*, which have blue flowers. The tubers should be planted in the rock garden or in parts of the garden that are not likely to be disturbed, since they must be allowed to spread to show their full beauty. The St. Brigid Anemones are gorgeous flowers in rose, scarlet, crimson and other colours. The tubers should be planted in October and again in February to provide a succession of bloom. They do best in fairly light soil; on heavy ground the bed for them should be slightly raised.

Camassia (Quamash).—Somewhat uncommon plants that produce large leaves and bloom in May. Perhaps the best is *Camassia esculenta*, which has light blue flowers on tall stems. Plant 3 inches deep.

Chionodoxa (Glory of the Snow).—A favourite early flowering plant with starry, blue, white-centred flowers. Plant 1 to 2 inches deep.

Crocus.—The spring Crocus is one of the gayest flowers of February and is valued for its earliness and its bright colours. Plant 2 inches deep.

Cyclamen.—One of the most charming of the spring flowering hardy Cyclamen is *C. Coum*; *C. Ibericum* and *C. cilicicum* are other spring blooming kinds. They need a soil of loam and leaf-mould with which brick and mortar rubble have been mixed. A cool position suits them best. The corms need only a slight covering of soil.

Eranthis (Winter Aconite).—The dainty yellow flowers, each surrounded by a green leafy ruffle, are familiar in most gardens in January. The bulbs do well in grass; they should be planted about 2 inches deep.

Eremurus (Giant Asphodel).—This is one of the stateliest of all hardy border plants; the flower stems of *Eremurus himalaicus* rise to a height of 5 feet or so. *E. robustus* is even more vigorous. Both bloom in May. *E. Bungei*, which is smaller and bears yellow flowers in early summer, is one of the most beautiful. The remarkable roots, which radiate from a central hub like the spokes of a cart wheel, should be planted in October about 5 inches deep. It is wise to choose a sheltered position, for they start into growth early and are liable to be damaged by late frost.

Erythronium (Dog's Tooth Violet).—Plant in partial shade in the rock garden in a soil of loam, leaf-mould and sand. Cover with 2 to 3 inches of soil. *Erythronium Dens-canis*, white, rose and other shades; *E. Americanum*, yellow, and *Hendersoni*, lilac, are some of the best.

Fritillaria (Fritillary).—The Snake's-head Fritillary is a delightful spring flower, its drooping blooms being chiefly of rose-purple shades, though the white variety is very beautiful. Cover the roots with 2 inches of soil. The Crown Imperial (*Fritillaria Imperialis*) is the most striking kind; its curious, drooping, yellow or red flowers on tall, strong stems are very handsome in April. The bulbs should be placed 4 or 5 inches deep.

Galanthus (Snowdrop).—Although the common Snowdrop (*Galanthus nivalis*) is not excelled for grace, the giant-flowered *Galanthus Elwesii* should also be planted. Plant the bulbs 2 to 3 inches deep.

Hemerocallis (Day Lily).—Vigorous plants with long narrow leaves and bearing an abundance of Lily-like flowers in shades of yellow and orange. They thrive in ordinary soil that is reasonably well drained, and do best when left undisturbed for a number of years. *H. fulva* and *H. flava* are two good kinds.

Hyacinthus (Hyacinth).—Few spring flowers are greater favourites than Hyacinths. Innumerable varieties in various colours are available. The bulbs should be planted 3 inches deep in groups rather than in lines and rows. Many charming colour schemes can be arranged.

Iris (Spanish and English Irises).—These are indispensable. The Spanish Irises are of graceful slender growth and flower in June, the colours being chiefly blue, white, yellow and bronze. The English Irises are taller and more vigorous and bloom in July, their flowers being white and shades of mauve and purple. The bulbs of Spanish Iris are planted 3 inches deep and about 6 inches apart, those of the English Irises 4 inches deep and 8 inches or so from each other.

Leucojum (Snowflake).—The Spring Snowflake (*Leucojum vernum*) is a delightful flower with white, drooping, green-tipped flowers. It is best planted in some corner of the rock garden about 2 inches deep. The Summer Snowflake (*Leucojum aestivum*), which blooms in May, has stems 18 inches high and rather small, white flowers.

Lilium (Lily).—Of Lilies that should be planted in autumn mention must be made of *Lilium Martagon* and its white variety; *L. pyrenaicum*, yellowish; *L. Hansoni*, yellow; *L. croceum*, orange-yellow; *L. testaceum*, nankeen-yellow; *L. umbellatum*, orange-red; and *L. tigrinum*, orange with black spots. The finest variety of the last named is *Fortunei*, a vigorous plant

that makes a wonderful display when established. *Lilium Henryi*, pale orange, is a splendid Lily for amateurs. All these kinds thrive in deep, loamy soil in partial shade, or, in sunshine, if the bulbs are planted 5 or 6 inches deep.

Muscari (Grape Hyacinth).—The brilliant blue flower clusters on stems several inches high make a glorious display in March and April if the bulbs are planted in autumn 2 to 3 inches deep. *Muscari* "Heavenly Blue" is the finest.

Narcissus (Daffodil).—This favourite plant thrives best in deep, loamy soil, but it will thrive in quite ordinary garden ground though it does not increase there so rapidly. The bulbs should be planted 3 to 4 inches deep. There are innumerable varieties to choose from, and fresh ones make their appearance every year. Some Daffodils thrive well in grass, such for example as Emperor, Empress, Stella superba, Waterwitch, Horsfieldii, and other vigorous sorts. If planted in informal groups and left undisturbed they will soon spread and make a delightful display in spring. It is important that the leaves be not cut down until they have faded. Some of the lesser Narcissi are charming flowers. Chief among them are the Hoop Petticoat, (*N. Bulbocodium*), the Cyclamen-flowered (*cyclamineus*), and Angel's tears (*triandrus*). They ought to be planted in the rock garden in sheltered nooks, the bulbs being placed some 2 inches deep.

Ornithogalum (Star of Bethlehem).—The commonest kind is the Star of Bethlehem (*Ornithogalum umbellatum*), which bears white flowers in spring and will thrive in a shady corner. The bulbs ought to be 3 inches or so deep.

Ranunculus.—These are not so popular as the St. Brigid Anemones, but they make a brilliant display

in summer if the roots are planted in early autumn in a sunny position in good soil. The roots should be planted claws downwards and be covered 2 inches or so deep. A sheltered position should be chosen.

Scilla (Squill).—The bright blue flowers of *Scilla sibirica* and *S. bifolia* are great favourites in early spring, for they add a splash of bright colour while yet there is little in bloom. The bulbs should be placed from 2 to 3 inches deep. Of Squills which bloom later in the year, *Scilla campanulata* (Spanish Bluebell), which is 12 inches or so high and bears flowers of blue, white and rose, and the common Bluebell (*Scilla nutans*) should be grown.

Tulipa (Tulip).—The bulbs of April flowering Tulips should be planted in October, 3 to 4 inches deep, and those of the May flowering varieties in November at 5 inches or so deep. There are innumerable varieties in each section.

BULBS FOR SUMMER PLANTING

Amaryllis Belladonna (Belladonna Lily).—This is one of the most beautiful flowers of September and should be grown by all who can provide the bulbs with a bed of deep, loamy soil at the foot of a greenhouse or wall facing south. The rose-coloured, lily-like flowers are borne on vigorous stems some 15 to 20 inches high. The bulbs may be planted in June or July at 6 inches deep. To obtain the best results it is necessary to leave them undisturbed for years.

Begonia.—The Tuberous Begonia is an invaluable flower and one of the most useful for filling summer beds. The tubers should be placed in boxes of leaf-soil in the greenhouse in March; if kept moist they will soon start into growth. After having been hardened



Drifts of Golden Daffodils grouped in grassland.

off they will be ready for planting out of doors in early June. Tuberous Begonias do well in partial shade and remain in bloom throughout the summer. The tubers must be taken up in autumn, dried and stored safe from frost until spring.

Colchicum (Meadow Saffron).—This is valuable because it blooms in autumn when most other flowers are over or are fast losing their beauty. The bulbs should be planted 2 inches deep in grass or among low growing carpeting plants so that their blooms will not be damaged by soil splashed up by rain. The leaves appear in the New Year and must be allowed to die down naturally. *Colchicum autumnale*, with pale rosy-mauve blooms, is the common Meadow Saffron. A finer kind is *Colchicum speciosum*, rose purple.

Crocus.—Crocuses that flower in autumn and winter are not often seen in amateurs' gardens, but they are worth planting, providing the blooms are protected by a handlight or cloche, or, better still, if the plants are grown in flower-pots in the cold greenhouse. They should be planted, or potted in July and August at about 2 inches deep. *Crocus pulchellus*, lavender, *C. sativus*, purple-rose, and *speciosus*, lavender blue, are good autumn flowering kinds. Of those that bloom in winter, *Crocus Imperati*, violet-purple, *chrysanthus*, yellow, and *Sieberi*, lavender, should be grown.

Cyclamen.—Some of the hardy Cyclamen bloom in autumn and need to be planted in June and July. Chief among them are *europaeum*—which has reddish-purple blooms in September, and *neopolitanum*, which is rose-pink and blooms in September and October.

Dahlia.—As a garden flower the Dahlia has been greatly improved during recent years and is now indispensable for the late summer months. Some of the

sections best suited to garden display are the Single, Paeony flowered, Decorative, Collarette and Star Dahlias, each of which is represented by numerous varieties. The tubers are started into growth in the greenhouse in March by being placed in pots or boxes of soil and kept moist and warm. The young shoots may be taken off and inserted as cuttings if desired, or the old roots may be planted directly in the garden in May without having been started into growth under glass ; they provide an abundance of blooms, but these are not so fine as those from young plants. In autumn, when frost has spoilt their beauty, the plants should be lifted ; when the soil has dried on the tubers, these are cleaned and stored safe from frost for the winter.

Salvia patens (Blue Sage).—This is one of the loveliest blue flowers of the garden. The plant has tuberous roots which should be planted in May, taken up in autumn and stored for the winter. Well cultivated, fairly light soil gives the best results. If seed is sown under glass in early spring the seedlings will bloom during the first summer.

BULB PLANTING IN SPRING

Galtonia candicans (Giant Summer Hyacinth).—This is a noble flowering plant of August ; it forms a tuft of large leaves and bears a stem 4 feet or so tall crowned with numerous drooping, white, bell-shaped flowers. The bulbs should be planted in March at 4 or 5 inches deep. If the soil is at all heavy and ill-drained it is wise to lift the bulbs in autumn and store them for the winter.

Gladiolus (Sword Lily).—See separate Chapter beginning on page 113.



The Giant Asphodel or King's Spear (*Eremurus robustus*).

Lilium (Lily).—The Lilies that are imported from Japan do not as a rule arrive in this country in time to allow of their being planted in autumn. They are, however, available for putting in the ground in February. Those referred to are *Lilium speciosum* and *L. auratum*; *L. tigrinum* may also be planted in spring. There are several beautiful varieties of each of these. The bulbs should be placed 5 or 6 inches deep in loamy soil in slight shade. It is advisable to mix a little peat and leaf-mould in the soil for *Lilium auratum*.

Montbretia.—The commoner kinds of Montbretia are easily grown in ordinary soil if planted in February or March. The best sorts are rather more fastidious and need deeply dug soil that has been made friable by the addition of leaf-mould and sand. It is not necessary to lift the roots in autumn, though the way to obtain the finest possible flowers is to do so, and to replant them in February, having first separated the large and small roots. They need a sunny spot, though the common kind, *Montbretia crocosmaeflora*, will flourish in partial shade.

PART THREE

Gardening at a Glance

FLOWERS FOR EVERY MONTH

HARDY PERENNIALS AND FLOWERING SHRUBS

JANUARY

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Chimonanthus fragrans</i>	Winter Sweet	Pale yellow	A leaf - losing shrub, thrives best against a sunny wall. Prune after flowering.
<i>Eranthis hyemalis</i>	Winter Aconite	Yellow	The bulbs should be planted in August or September, 3 inches deep.
<i>Galanthus nivalis</i>	Snowdrop	White	Plant the bulbs in August, September.
<i>Hamamelis mollis</i>	Witch Hazel	Yellow	A splendid winter shrub for the open garden.
<i>Helleborus niger</i>	Christmas Rose	White	Thrives best in partial shade. Plant in March.
<i>Jasminum nudiflorum</i>	Winter Jasmine	Pale yellow	May be grown on a wall or on a support in the open garden. Prune after flowering.
<i>Lonicera fragrantissima</i>	Winter Honey-suckle	Cream	Fragrant flowers, plant in the open garden.
<i>Pyrus japonica</i>	Japanese Quince	Red	May be grown on a wall or in the open.
<i>Viburnum Tinus</i>	Laurustinus	White	An evergreen shrub, the pink buds and white flowers are attractive from autumn to spring.

FEBRUARY

<i>Cornus Mas</i>	Cornelian Cherry	Yellow	The shrub becomes covered with small blossoms.
<i>Crocus</i>	Crocus	Various	Plant the bulbs in August, September

FEBRUARY (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Cyclamen Coum</i>	Hardy Cyclamen	Rose-red	Plant in autumn in partial shade in well-drained leafy soil.
<i>Daphne Mezereum</i>	Mezereon	Reddish purple	Plant in autumn, mixing lime in soil. No regular pruning.
<i>Erica carnea</i>	Winter Heath	Reddish	Plant in early autumn in loamy or peaty soil free from lime.
<i>Erica Mediterranea</i>	Mediterranean Heath	Reddish	Forms a bush 4 feet or more high. Best in loam or peat soil.
<i>Prunus Amygdalus</i>	Almond	Pale rose	A favourite early flowering tree. Thin out some of the oldest branches occasionally.
<i>Rhododendron dauricum</i>	Early Rhododendron	Rose-purple	Suitable for rockery in peat or loam soil.

MARCH

<i>Anemone apennina</i>	Apennine Anemone	Blue	Plant the roots in early autumn.
<i>Anemone blanda</i>	Grecian Anemone	Pale blue	Plant the roots in early autumn in the rockery.
<i>Bellis perennis</i>	Daisy	Various	There are many fine varieties with double and single flowers.
<i>Chionodoxa Luciliae</i>	Glory of the Snow	Blue and white	Plant in October.
<i>Forsythia</i>	Golden Bell	Yellow	Plant the bulbs in September.
<i>Garrya elliptica</i>	Garrya	Greenish	The flowering season extends throughout April. Prune after flowering.
<i>Helleborus orientalis</i>	Lenten Rose	White	The catkins of the male form of this shrub are handsome. Plant against a wall.
<i>Hepatica angulosa</i>	Hepatica	Various	Plant in partial shade.
<i>Iberis sempervirens</i>	Evergreen Candytuft	White	Plant the roots in autumn in partial shade. Plant in autumn or spring in rock garden or border edge.

MARCH (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Magnolia stellata</i>	Star-flowered Lily tree	White	Plant in sheltered place. No regular pruning.
<i>Megasea cordifolia</i>	Saxifrage	Rose pink	Suitable for border margin or wild garden.
<i>Narcissus</i>	Daffodil	Various	Indispensable for spring. Plant the bulbs in October.
<i>Phlox subulata</i>	Moss pink	Rose	Charming flowers for rockery or border margin. Cut back after flowering. Well-drained soil, partial shade.
<i>Primula denticulata</i>	Himalayan Primrose	Lilac	Suitable for moist soil in the rock garden. Raised from seeds in March in a frame.
<i>Prunus spinosa</i> fl. pl.	Double Black-thorn	White	An attractive, easily grown shrub. No regular pruning.
<i>Scilla sibirica</i>	Siberian Squill	Blue	Plant the bulbs in September.
<i>Spiraea Thunbergii</i>	Thunberg's Spiraea	White	An attractive shrub with beautiful summer foliage.

APRIL

<i>Alyssum saxatile</i>	Gold Dust	Yellow	Plant in autumn in well-drained soil on rockery or border edge.
<i>Amelanchier canadensis</i>	Juneberry	White	Large shrub or small tree. No regular pruning.
<i>Androsace carnea</i>	Rock Jasmine	Pink	Beautiful rock plant for gritty soil. Plant in September or March.
<i>Anemone Coronaria</i>	St. Brigid Anemone	Various	Brilliant flowers of varied colours. Plant the tubers in September and in February in well-drained soil.
<i>Anemone Pulsatilla</i>	Pasque Flower	Lavender	Likes chalky soil. Plant in September in rock garden.

APRIL (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Arabis albida</i>	Rock Cress	White	The double variety is best. Cut back after flowering. Rockery or border edge.
<i>Aubrieta graeca</i>	Aubrieta	Various	Beautiful trailing plants for rockery or border edge. Plant in autumn or spring. Trim back after flowering.
<i>Berberis</i>	Barberry	Orange-yellow	Splendid flowering shrubs. <i>Darwinii</i> and <i>stenophylla</i> are two of the best. Prune after flowering.
<i>Cheiranthus</i>	Wallflower	Various	Sow seeds in May to provide flowering plants for next year.
<i>Cytisus praecox</i>	Early Broom	Cream	Free blooming, invaluable for the shrubby. Plant in autumn from pots.
<i>Forsythia</i>	Golden Bell tree	Yellow	Plant in autumn. Prune after flowering.
<i>Fritillaria</i>	Fritillary	Various	Plant the bulbs in September.
<i>Gentiana acaulis</i>	Gentianella	Blue	Plant in loamy soil among stones. A capricious plant.
<i>Iberis sempervirens</i>	Evergreen Candytuft	White	For rockery or border edge. Cut back after flowering.
<i>Lithospermum prostratum</i>	Gromwell	Blue	Peat soil on rockery.
<i>Magnolia conspicua</i>	Yulan or Lily tree	White	Plant in sheltered place No regular pruning.
<i>Muscari</i>	Grape Hyacinth	Blue	Heavenly Blue is the most brilliant. Plant the bulbs in autumn.
<i>Myosotis</i>	Forget-me-not	Blue	Sow seeds in May to provide flowering plants for following year.
<i>Primula frondosa</i>	Primrose	Rose-pink	Plant in rockery.
<i>Primula japonica</i>	Japanese Primrose	Various	Plant in moist soil in rockery, border or near stream.

APRIL (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Prunus japonica</i>	Chinese Apricot	Blush	Plant in sheltered place. No regular pruning.
<i>Ribes sanguinea</i>	Flowering Currant	Rose	Easily grown in ordinary soil. Prune after flowering.
<i>Sisyrinchium grandiflorum</i>	Satin Flower	Purple	A beautiful early border flower; hardy perennial.
<i>Spiraea arguta</i>	Spiraea	White	One of the finest spring shrubs, bearing masses of small flowers. Prune after flowering.

MAY

<i>Anchusa</i>	Alkanet	Blue	One of the finest of all blue border flowers. Plant in autumn. Increase by root cuttings after flowers are over.
<i>Androsace sarmentosa</i>	Rock Jasmine	Pink	Charming rock garden flower. Plant in autumn or spring in gritty soil.
<i>Anemone sylvestris</i>	Snowdrop Windflower	White	For cool moist soil in the rock garden. Plant in autumn.
<i>Aquilegia</i>	Columbine	Various	Indispensable flowers. Sow seeds in April to provide plants for next year.
<i>Asperula odorata</i>	Woodruffe	White	Creeping plant for shady corner.
<i>Caltha palustris</i>	Marsh Marigold	Golden yellow	Handsome plant for bog or waterside.
<i>Convallaria majalis</i>	Lily of the Valley	White	Plant in October, placing the roots singly at 3 inches apart. Add leaf-mould to the ground.
<i>Corydalis lutea</i>	Fumitory	Yellow	A graceful plant for dry wall or shady rock crevice.

MAY (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Cytisus albus</i>	White Broom	White	One of the earliest shrubs. <i>Cytisus praecox</i> (cream-yellow) is also beautiful. Put out young plants from pots.
<i>Dodecatheon Media</i>	Shooting Star	Various	Showy plants for cool, moist soil in the rock garden.
<i>Doronicum Harpur Crewe</i>	Leopard's Bane	Yellow	A good early flowering border plant. Large Daisy-like flowers. Thrives in shade.
<i>Eremurus himalaicus</i>	Giant Asphodel	White	The roots should be planted in October in a sheltered position.
<i>Genista hispanica</i>	Spanish Broom	Yellow	One of the best dwarf Brooms.
<i>Geum Mrs. Bradshaw</i>	Scarlet Geum	Scarlet	One of the finest border flowers. Blooms for months. Easily raised from seed in spring.
<i>Helianthemum</i>	Sun Rose	Various	Suitable for the rock garden or border edge. Needs light soil. Very free.
<i>Iris</i>	Fleur-de-Lis	Various	The Flag Irises which bloom in May and June are the loveliest flowers of their season. Plant in July. Add lime to the soil if that substance is lacking.
<i>Kerria japonica</i>	Jew's Mallow	Yellow	An old shrub that may be grown on a wall or in the open. The double flowered form is best.
<i>Lupinus polyphyllus</i>	Lupin	Various	Handsome border plants of early summer. They thrive in sun or shade. Easily raised from seed sown in spring.
<i>Mertensia virginica</i>	Virginian Cowslip	Blue	Interesting early summer border flowers.

MAY (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Papaver nudicaule</i>	Iceland Poppy	Various	Delightful flowers for cutting. Sow seed in May for next year's plants.
<i>Papaver orientale</i>	Oriental Poppy	Various	The gorgeous flowers of these Poppies are invaluable in May. Plant in autumn. Easily grown from seed sown in early summer.
<i>Polemonium himalaicum</i>	Jacob's Ladder	Violet-blue	Quick growing and attractive. Plant in autumn. Raise from seed sown in spring.
<i>Prunus serrulata fl. pl.</i>	Double Flowering Cherry	White	A beautiful ornamental tree, smothered with blossom. No regular pruning.
<i>Pyrus floribunda</i>	Ornamental Crab	Rose	A most beautiful small tree grown for its blossom. No regular pruning.
<i>Ranunculus acris fl. pl.</i>	Bachelor's Buttons	White	Free flowering. Likes moist soil.
<i>Rhododendron</i>	Rhododendron	Various	The finest evergreen flowering shrubs. Remove faded flowers and seed pods.
<i>Ribes</i>	Flowering Currant	Rose-red chiefly	Easily grown and attractive shrubs.
<i>Rosa Conrad F. Meyer</i>	Double Rose	Pink	The earliest double Rose, very vigorous and thorny. Cut out old branches after flowering.
<i>Rosa Hugonis</i>	Single Rose	Yellow	One of the earliest of all Roses. Forms a big bush. Prune by thinning out old shoots after flowering.
<i>Rubus deliciosus</i>	Rocky Mountain Bramble	White	A beautiful flowering bramble. Prune out old stems in autumn.
<i>Syringa vulgaris</i>	Lilac	Various	Thin out old branches in June and remove suckers.

MAY (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Tamarix tetrandra</i>	Tamarisk	Rose	A graceful flowering shrub. Plant in light soil. No regular pruning.
<i>Tiarella cordifolia</i>	Foam flower	White	A dainty plant for rockery or border edge. Needs moist leafy soil.
<i>Trillium grandiflorum</i>	Wood Lily	White	Suitable for the rock garden in moist, leafy soil in shade.
<i>Trollius asiaticus</i>	Globe Flower	Orange-yellow	Splendid border flower. Needs moist soil and partial shade.
<i>Tulipa</i>	May flowering Tulip	Various	Plant the bulbs in early November. Gorgeous flowers on tall stems.
<i>Veronica rupestris</i>	Speedwell	Blue	A creeping plant for the rockery. Intense blue flowers.
<i>Viola cornuta</i>	Horned Viola	Light blue	There are variously coloured varieties. They are of compact growth and long flowering.
<i>Viola gracilis</i>	Grecian Viola	Violet	A charming Viola for the rock garden in gritty, moist soil.

JUNE

<i>Achillea Ptarmica fl. pl.</i>	Double Milfoil	White	Easily grown in ordinary soil.
<i>Anthemis tinctoria</i>	Chamomile	Yellow	A showy and easily grown border plant.
<i>Armeria vulgaris</i>	Thrift	Rose	Invaluable for edging. Divide and replant in September when necessary.
<i>Astilbe Arendsi</i>	Spiraea	Various	Several fine varieties are available, Ceres, rose, being one of the best. Very beautiful in moist soil in shade.
<i>Bocconia cordata</i>	Plume Poppy	Cream	A vigorous and handsome plant.

JUNE (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Campanula carpatica</i>	Carpathian Bellflower	Blue	Suitable for the border margin or rockery. Free blooming. There are varieties with white flowers and various shades of blue.
<i>Campanula persicifolia</i>	Peach-leaved Bellflower	Blue or white	Continuous flowering if old blooms are picked off.
<i>Centaurea montana</i>	Perennial Cornflower	Blue	Easily grown and showy
<i>Centranthus coccineus</i>	Red Valerian	Rose red	Free and attractive. Easily grown from seed.
<i>Cerastium tomentosum</i>	Mouse Ear Chickweed	White	Useful for margin of border. Spreads quickly. Cut back after flowering.
<i>Cistus laurifolius</i>	Rock Rose	White	A vigorous bush, the hardiest of the Cistuses. Prefers light soil.
<i>Clematis lanuginosa</i>	Clematis	Various	Nellie Moser is one of the loveliest varieties.
<i>Coreopsis grandiflora</i>	Golden Tick-seed	Yellow	Must be raised from seed every summer. Sow in June
<i>Delphinium</i>	Perennial Larkspur	Chiefly blue	One of the noblest of hardy perennials. Plant in deep rich soil.
<i>Deutzia crenata</i>	Deutzia	White	A showy flowering shrub. Cut out old branches after flowering.
<i>Dianthus</i>	Pink	Various	Rock and Border Pinks are among the most delightful of all flowers. Take cuttings when the blooms have faded. Sow seed in spring. Cut back slightly after flowering.
<i>Dictamnus Fraxinella</i>	Burning Bush	Rose	Good border flowers.
<i>Diervilla</i>	Bush Honey-suckle	Rose	Favourite flowering shrubs. Prune after flowering.

Flowers for Every Month

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JUNE (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Digitalis</i>	Foxglove	Various	Sow seed in June to have flowering plants next year.
<i>Erigeron speciosus</i>	Summer Starwort	Light purple	There are several sorts, all excellent border flowers.
<i>Escallonia Langleyensis</i>	Escallonia	Pink	One of the best kinds. A showy flowering shrub.
<i>Funkia lancifolia</i>	Plantain Lily	Pale blue	Handsome leaves. Needs partial shade.
<i>Galega</i>	French Lilac	Mauve	Vigorous border plant.
<i>Genista virgata</i>	Broom	Yellow	A tall shrub, excellent for planting in poor soil.
<i>Geranium grandiflorum</i>	Geranium	Purple-blue	One of the true Geraniums. Very showy border plant.
<i>Hemerocallis</i>	Day Lily	Yellow	Free flowering perennial.
<i>Heuchera</i>	Alum Root	Various	These are dainty and graceful plants, having blooms of rose-crimson and other shades. They need sunshine and well-drained soil.
<i>Hypericum calycinum</i>	Rose of Sharon	Yellow	Valuable for planting under trees where few other plants will grow. Cut back in spring.
<i>Laburnum vulgare</i>	Laburnum	Yellow	A favourite flowering tree. No regular pruning.
<i>Lathyrus</i>	Sweet Pea	Various	Indispensable annuals. Sow seeds in late September, or in January, in pots of soil in a frame, or out of doors in spring.
<i>Lavatera Olbia</i>	Tree Mallow	Rose	A showy border plant, vigorous and quick growing. Cut back in spring.
<i>Lilium candidum</i>	White Lily	White	Plant the bulbs in August and leave undisturbed.

JUNE (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Linum narbonense</i>	Blue Flax	Blue	Of slender growth, suitable for rockery or border. Sow seeds in spring for next year's flowering. Perennial.
<i>Lupinus arboreus</i>	Tree Lupin	Yellow	Beautiful shrubby plants suitable for light soil and a sunny place.
<i>Lychnis Viscaria splendens</i>	Catchfly	Reddish	Very showy, a good border plant.
<i>Mimulus luteus</i>	Musk	Various	The hybrid Musks now available have flowers of gorgeous colours. Need moist soil, not very hardy.
<i>Monarda didyma</i>	Bee Balm	Red	Has fragrant foliage. An old and attractive border plant.
<i>Nepeta Mus-sinii</i>	Catmint	Pale mauve	A delightful border flower. May be increased by division in autumn.
<i>Oenothera biennis</i>	Evening Primrose	Yellow	Seed should be sown each summer unless there are plenty of self-sown seedlings.
<i>Paeonia</i>	Paeony	Various	Handsome border plants which need rich soil and to be left undisturbed.
<i>Philadelphus</i>	Mock Orange	White	Favourite flowering shrubs. The double variety named Virginale is one of the finest. Prune after flowering.
<i>Potentilla</i>	Potentil	Various	One of the showiest border flowers. Easily raised from seed sown in summer.
<i>Pyrethrum</i>	Pyrethrum	Various	Beautiful border flowers, better suited to light than heavy ground.
<i>Robinia hispida</i>	Rose Acacia	Rose	Bear handsome bunches of rose-coloured pea-shaped blooms.

JUNE (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
Rosa	Rose	Various	Modern Hybrid Tea and Tea Roses bloom from June until October.
Scabiosa caucasica	Caucasian Scabious	Lilac mauve	Not a safe perennial on heavy soil. Easily grown from seeds sown in summer for next year.
Sidalcea Lesteri	Grecian Mallow	Rose	A handsome Mallow-like plant.
Spiraea Aruncus	Goat's Beard	Cream white	A vigorous plant, very handsome when in bloom. Needs moist soil.
Thalictrum aquilegiifolium	Meadow Rue	Purple	Vigorous, with attractive foliage and flowers.
Wistaria sinensis	Wistaria	Mauve	One of the loveliest climbing shrubs. Shorten the side shoots in summer and prune them again in winter.

JULY

Acanthus mollis	Bear's Breech	Purplish	Handsome leaves of fine form. Leave undisturbed.
Achillea Eupatorium	Milfoil	Yellow	Thrives in ordinary soil.
Aconitum Napellus	Monkshood	Blue	Useful summer and autumn flowering plants. The blue and white variety (bi-color) is to be preferred.
Antirrhinum	Snapdragon	Various	Easily grown from seed sown under glass in spring or in a frame in summer.
Campanula latifolia	Bellflower	Blue purple	A vigorous and showy plant for the shady border or wild garden.

JULY (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Campanula Medium</i>	Canterbury Bell	Various	Seeds should be sown in June to provide next year's plants.
<i>Campanula pyramidalis</i>	Chimney Bellflower	Blue	Seeds should be sown in March under glass to ensure fine plants the following year. Does not flower well for more than two or three years. Best to sow annually.
<i>Catananche caerulea</i>	Cupidone	Blue	Useful and showy border flowers.
<i>Chrysanthemum, Border</i>	—	Various	A selection of varieties yields bloom from July to October.
<i>Chrysanthemum maximum</i>	Perennial Marguerite	White	There are now some fine varieties, e.g. Mrs. Lowthian Bell and King Edward.
<i>Clematis heracleifolia</i>	Bush Clematis	Blue	A Clematis that forms a fair-sized bush.
<i>Dianthus</i>	Border Carnation	Various	These plants give the best results when left undisturbed for two or three years. Propagated by layers in July, August, and seeds sown in spring.
<i>Echinops</i>	Globe Thistle	Steel-blue	Has attractive globular heads of bluish flowers.
<i>Eryngium</i>	Sea Holly	Blue	Handsome perennials preferring light soil.
<i>Gaillardia</i>	Blanket Flower	Various	Not good perennials on heavy soil. Should be raised from seed each summer.
<i>Gypsophila paniculata</i>	Cloud Flower	White	Invaluable for cutting. Should remain undisturbed as it becomes established slowly.
<i>Helenium</i>	Sneezewort	Yellow chiefly	<i>Helenium pumilum magnificum</i> is the finest for July flowers.
<i>Helianthus</i>	Sunflower	Yellow	Useful border plants of which numerous sorts are obtainable.

JULY (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Isatis glauca</i>	Woad	Yellow	Rather uncommon and attractive. Greyish leaves and an abundance of small blossoms.
<i>Lathyrus grandiflorus</i>	Perennial Pea	Rose purple	Should be trained over a support of rough poles. The variety White Pearl is beautiful. Easily grown from seed.
<i>Lilium Martagon</i>	Martagon Lily	Purple	The white Martagon Lily is one of the loveliest of all. Plant in deep, loamy soil in partial shade.
<i>Lilium pardalinum</i>	Panther Lily	Scarlet and Yellow	Needs moist, deep soil. Very showy.
<i>Lychnis chalcedonica</i>	Scarlet Lychnis Stock	Red	An old and good border perennial.
<i>Matthiola</i>		Various	The Ten Week Stocks are great favourites. Seed is sown under glass in March.
<i>Pentstemon barbatus</i>	Bearded Pentstemon	Red	A handsome perennial, too little grown.
<i>Tamarix pentandra</i>	Tamarisk	Rose	A lovely flowering shrub, does best in light soil.
<i>Verbascum densiflorum</i>	Mullein	Yellow	One of the finest, a perennial.
<i>Veronica spicata</i>	Speedwell	Blue	A beautiful border flower.
<i>Viola</i>	Pansy	Various	Raised from cuttings in July, or seed sown in spring or summer.

AUGUST

<i>Acanthus spinosus</i>	Bear's Breech	Lilac	A stately border plant with finely cut leaves. Must remain undisturbed.
<i>Althaea rosea</i>	Hollyhock	Various	Valuable August flowers. Will bloom the first year from seed sown under glass in February.

AUGUST (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Anemone japonica</i>	Japanese Anemone	White and rose	The varieties of Japanese Anemone in white and shades of rose are invaluable late summer flowers. The plants should be left alone for many years.
<i>Asclepias tuberosa</i>	Milkweed	Orange-red	An uncommon plant, needing peaty or leafy soil.
<i>Astilbe</i>	Spiraea	Rose, white	Handsome plants needing deep, moist soil, suitable for shady border or waterside. <i>Astilbe Davidii</i> , rose purple and <i>grandis</i> , white, bloom in August.
<i>Bocconia cordata</i>	Plume Poppy	Cream	A vigorous plant bearing tall spikes of bloom. Needs deep soil and should remain undisturbed.
<i>Campanula</i>	Bellflower	Blue, white	Several Campanulas, e.g. <i>persicifolia</i> , <i>garganica</i> and <i>muralis</i> , bloom until late summer if dead flowers are picked off.
<i>Catananche caerulea</i>	Cupidone	Blue	A free blooming perennial, still gay in August.
<i>Centaurea</i>	Perennial Cornflower	Various	<i>Centaurea glastifolia</i> and <i>C. macrocephala</i> , both having yellow flowers, are handsome border plants not commonly seen.
<i>Centranthus coccineus</i>	Valerian	Rose-red	This familiar plant continues to bloom all the summer, and usually sows itself freely.
<i>Chrysanthemum maximum</i>	Shasta Daisy	White	There are several excellent free flowering varieties, e.g. King Edward and Mrs. Lowthian Bell.

AUGUST (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Cimicifuga</i>	Fleabane	White	Graceful plants of which the chief kinds are <i>C. racemosa</i> , <i>japonica</i> and <i>cordifolia</i> .
<i>Clematis heracleae-folia</i>	Bush Clematis	Blue	A bush bearing fragrant flowers.
<i>Coreopsis grandiflora</i>	Golden Tickseed	Yellow	Very showy, must be raised from seed sown in May or June each year.
<i>Echinacea purpurea</i>	Purple Coneflower	Red-purple	A useful flowering plant of cheerful colour.
<i>Echinops sphaerocephalus</i>	Globe Thistle	Blue	Vigorous, with rounded heads of blue flowers.
<i>Erigeron Quakeress</i>	Summer Starwort	Mauve-grey	A valuable plant, owing to its long flowering season.
<i>Eryngium</i>	Sea Holly	Blue	<i>Eryngium amethystinum</i> , <i>E. Bourgatti</i> and <i>E. Oliverianum</i> are handsome plants with glistening blue flower heads that remain gay for many weeks.
<i>Eupatorium purpureum</i>	Hemp Agrimony	Purple	A tall border plant useful in late summer.
<i>Ferula communis</i>	Giant Fennel	Yellow	A tall vigorous plant grown for its attractive, finely cut leaves.
<i>Francoa ramosa</i>	Bridal Wreath	White	Not hardy except in fairly mild districts.
<i>Funkia subcordata grandiflora</i>	Plantain Lily	White	Grown chiefly for the sake of its large, handsome leaves. Thrives best in shade.
<i>Gentiana septemfida</i>	Gentian	Blue	A handsome late flowering plant and one of the easiest to grow.
<i>Geum Mrs. Bradshaw</i>	Scarlet Geum	Scarlet	This splendid plant which begins to bloom in May is still in flower in August.
<i>Gypsophila paniculata</i>	Cloud Flower	White	Indispensable for providing cut bloom. Dislikes being disturbed.

AUGUST (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
Helenium	Sneezewort	Various	There are several fine kinds of Helenium that make a splendid show in late summer, e.g. Riverton Beauty, and Riverton Gem. They are tall and vigorous.
Helianthus	Sunflower	Yellow	The variety Miss Mellish is one of the best tall border plants. Bouquet d'or is a fine double form.
Inula Roy-leana	—	Yellow	A handsome border plant.
Lavendula	Lavender	Pale Mauve	Thrives best on light soil. Should be clipped over after flowering.
Lilium	Lily	Various	Some of the Lilies are in full beauty in August, such for instance as tigrinum, auratum and Henryi.
Lobelia cardinalis	Scarlet Lobelia	Scarlet	The variety Queen Victoria is one of the most brilliant. A covering of ashes in winter is advisable.
Montbretia	Montbretia	Orange and yellow	The roots should be planted in spring. There are many fine new varieties.
Oenothera fruticosa	Evening Primrose	Yellow	The Evening Primroses have a long flowering season. This kind is a perennial.
Pentstemon	Pentstemon	Various	One of the best flowers of August. Take cuttings in September and keep in a cold frame during winter.
Phlox decussata	Herbaceous Phlox	Various	Splendid August flowering plants. They need deep, rich soil.
Plumbago Larpentae	Leadwort	Blue	Suitable for well-drained soil in the rockery.

AUGUST (continued)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Polygonum affine</i>	Knot Grass	Rose-red	An attractive low growing plant suitable for rockery or front of border. <i>Polygonum sachalinense</i> is a vigorous kind with white flowers.
<i>Rudbeckia</i>	Coneflower	Chiefly yellow	Vigorous herbaceous perennials for the border. Golden Glow is a fine double variety.
<i>Salvia virgata nemorosa</i>	Purple Sage	Purple	A splendid late summer flower. Soon forms a good clump.
<i>Sedum spectabile</i>	Japanese Stonecrop	Rose-red	A handsome border plant of late summer. Suitable for the front of the border.
<i>Solidago canadensis</i>	Golden Rod	Yellow	An easily grown and showy border plant.
<i>Statice latifolia</i>	Sea Lavender	Purple-blue	Indispensable for August. The flowers are of the "everlasting" type.
<i>Thalictrum dipterocarpum</i>	Meadow Rue	Rose-purple	A comparatively new tall border plant of great beauty.
<i>Tritoma Saundersii</i>	Torch Lily	Orange-red	The Torch Lilies thrive best in a sunny place and well-drained soil.
<i>Verbascum Chaixii</i>	Mullein	Yellow	One of the perennial Mulleins.
<i>Veronica virginica</i>	Speedwell	Light blue	A tall and graceful border plant.

SEPTEMBER

<i>Aconitum autumnale</i>	Monkshood	Dark blue	One of the best late kinds. <i>Aconitum Wilsoni</i> is another to be recommended.
<i>Anemone japonica</i>	Japanese Anemone	Various	In full beauty in late summer and early autumn. Leave undisturbed and plant in partial shade.

SEPTEMBER (*continued*)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
<i>Artemisia lactiflora</i>	Wormwood	Cream-white	A vigorous and attractive border plant with graceful flower bunches.
<i>Aster</i>	Michaelmas Daisy	Various	Numerous September flowering varieties are available.
<i>Chrysanthemum</i>	—	Various	Many Border Chrysanthemums bloom in September.
<i>Cimicifuga simplex</i>	Snakeroot	White	One of the most graceful plants in bloom in September.
<i>Cyclamen europaeum</i>	Hardy Cyclamen	Rose-purple	Should be planted in soil containing mortar rubble, in partial shade.
<i>Gynerium argenteum</i>	Pampas Grass	Cream-white	Bears handsome plumes of bloom. A fine lawn plant.
<i>Helenium Riverton Gem</i>	Sneezewort	Gold and brown	One of the finest of autumn border plants.
<i>Helianthus laetiflorus</i>	Sunflower	Yellow	A vigorous plant with large, handsome blooms.
<i>Lilium</i>	Lily	Various	<i>Lilium speciosum</i> and its varieties are the best hardy September Lilies.
<i>Lobelia cardinalis</i>	Scarlet Lobelia	Scarlet	This handsome Lobelia remains in full beauty during part of September.
<i>Pentstemon</i>	Pentstemon	Various	These plants bloom from the end of July until well on in September.
<i>Physalis Franchetti</i>	Winter Cherry	Orange-red calyces	The enlarged orange-red calyces are very striking. Plant in well-drained soil in spring in a sunny place.
<i>Polygonum vaccinifolium</i>	Knotweed	Rose	A pretty dwarf plant for the front of the border.
<i>Pyrethrum uliginosum</i>	Moon Daisy	White	A tall plant bearing an abundance of white, Daisy-like blooms.

SEPTEMBER (*continued*)

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour</i>	<i>Instructions</i>
Rudbeckia Newmanni	Coneflower	Yellow	One of the best of the Coneflowers.
Salvia uliginosum	Blue Sage	Blue	A comparatively new plant of great beauty, tall and graceful; of doubtful hardiness except on warm soil.
Schizostylis coccinea	Kaffir Lily	Scarlet	A valuable late flowering plant for a warm border.
Sedum spectabile	Japanese Stonecrop	Rose	The variety <i>atropurpureum</i> is of finer colour than the type. An excellent border plant.
Tritoma grandis	Torch Lily	Scarlet	A handsome Torch Lily or Red Hot Poker.

OCTOBER, NOVEMBER AND DECEMBER

In October the chief hardy flowering plants in bloom are some of the Michaelmas Daisies and Border Chrysanthemums while many Roses will flower if the weather is mild. In November the only out-of-door flowers one may expect are a few late Roses and perhaps some stray border flowers, together with early blooms of one of the Witch Hazels (*Hamamelis Zuccariniana*), the Laurustinus, and the Winter Jasmine (*Jasminum nudicaule*). In December Laurustinus, Christmas Rose, *Hamamelis mollis* and Winter Jasmine are in bloom.

WHEN AND HOW TO PRUNE HARDY SHRUBS AND PLANTS

<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Abelia	—	As soon as the flowers have faded	Cut off old flower heads ; occasionally cut out useless branches as is necessary.
Abies	Silver Fir	Winter	Cut out dead branches.
Actinidia Chinensis	—	Spring	Cut off the ends of weakly shoots.
Ailanthus glandulosa	Tree of Heaven	Spring	If used to fill ornamental beds, and large leaves are wanted, prune hard.
Alinus	Alder	Summer	Cut out dead branches and those that tend to spoil the shape of the bushes.
Aloysia citriodora	Lemon Scented Verbena	Spring	Shorten the previous year's shoots
Amelanchier canadensis	Snowy Mespilus	Winter	Regular pruning is not necessary. Cut out old branches occasionally.
Arabis albida	Rock Cress	May	Cut back as soon as the flowers have faded.
Arbutus Unedo	Strawberry Tree	April	Prune merely to preserve a shapely tree, and to remove dead branches.
Aubrietia deltoides	Purple Rock Cress	May	Cut back when the flowers are over.
Aucuba	Aucuba	Summer	Cut out branches that spoil the symmetry of the bush.
Berberis	Barberry	June	Cut out old branches occasionally to make room for the younger shoots.
Bignonia	Cross Vine or Trumpet Flower	Spring	Cut out old shoots that can be replaced by younger ones.
Box edging	—	April and August	Trimming in these two months will keep Box edging neat.

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<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Buddleia	—	Spring	The Orange Ball tree (<i>Buddleia globosa</i>) needs no regular pruning, merely cut out old branches occasionally. The commonly grown forms of <i>Buddleia variabilis</i> should be hard pruned in spring. Cut off old flower heads.
<i>Calluna vulgaris</i>	Ling	Autumn	Prune branches that spoil the shape of the bushes as soon as the flowers have faded.
<i>Camellia japonica</i>	Camellia	Spring	Prune branches that spoil the shape of the bushes as soon as the flowers have faded.
Catalpa	Bean Tree	Summer	Restrict the side branches unless a wide-spreading tree is wanted.
Ceanothus	Mountain Sweet	Spring and summer	Those kinds that bloom in late summer should be pruned in spring; e.g. <i>americanus</i> and its varieties; others when the flowers have faded, cutting out old branches when necessary.
<i>Chimonanthus fragrans</i>	Winter Sweet	Spring	When grown against a wall cut back the shoots when the blooms have faded. If grown in the open cut out old branches occasionally.
Cistus <i>Clematis</i>	Rock Rose Virgin's Bower	Summer Spring and summer	Cut off old flower heads. Late flowering varieties, e.g. those of the <i>Jacmanni</i> and <i>viticella</i> groups, should be hard pruned in spring. Those of the <i>languinosa</i> section should be pruned moderately hard in spring. Others should be thinned out after flowering.

<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Clethra	—	Summer	Cut off dead flowers and trim into shape after blooming.
Colutea	Bladder Senna	Spring	May be hard pruned in spring though this is not essential.
Cornus	Dogwood	Spring	Those kinds grown for the sake of their coloured bark in winter are cut back in spring, the others merely looked over after flowering for removal of useless branches.
Cotoneaster	Rock Spray	Spring	No regular pruning. Thin out old and weak branches sometimes to keep the bushes symmetrical.
Crataegus	Thorn	Spring and summer	When Whitethorn is grown as a hedge it should be clipped in spring and again in late summer. Thorns grown as trees or bushes need no regular pruning beyond that needed to keep them shapely.
Cupressus	Cypress	Summer	Cut out dead inside branches.
Cytisus	Broom	Summer	Cut back the shoots when the flowers have faded, <i>Cytisus purpureus</i> may be cut back hard in spring.
Daboecia	Irish Heath	Summer	Cut off dead flower heads and thus shorten the shoots slightly.
Delphinium	Perennial Larkspur	Summer	When the June flowers are over cut down the stems; fresh shoots will then grow and bloom later.
Deutzia	—	Summer	Cut out old branches, when the blooms are over, from those kinds on which there are plenty of young shoots.

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<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Dianthus	Pink	Summer	Pinks are improved, and kept compact if trimmed back after flowering; some plants will flower themselves to death if the seed pods are not removed.
Diervilla	Bush Honeysuckle	Summer	Look over the bushes when the blooms have faded and cut out such old branches as can be spared.
Elaeagnus	—	Summer	Merely cut out shoots that tend to spoil the shape of the bushes.
Erica	Heath	Spring and summer	Cut off old flower heads, thus trimming the shoots slightly.
Escallonia	—	Summer	No regular pruning but old branches may sometimes be cut out.
Euonymus	—	Summer	When grown as hedges should be clipped in April and August. Otherwise merely cut out shoots that spoil the shape of the bush.
Forsythia	Golden Bell	Spring	The branches that have flowered should be shortened as soon as the flowers have faded.
Fuchsia	Hardy Fuchsia	Spring	It is usual except in mild districts to cut the branches down almost to the ground in spring.
Garrya elliptica	—	Spring	May be pruned slightly after flowering, but only enough to ensure the shapeliness of the plants.
Genista	Broom	Spring	Only young plants need regular pruning ; the shoots should be shortened in spring to make them branch. <i>Genista tinctoria</i> is cut back in spring!

<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Halesia	Snowdrop Tree	Summer	Merely cut out branches that tend to spoil the shape of the tree, this being done when the flowers have faded.
Hamamelis	Witch Hazel	Spring	Very little pruning is needed. When the bushes have flowered they may be trimmed slightly if unshapely.
Hedera	Ivy	Spring	Ivy on walls should be cut hard back in March. Fresh leaves will soon grow.
Hedysarum multijugum	—	Spring	Shorten the branches by half in spring, and a few of them may be pegged down if there is room.
Helianthemum	Sun Rose	Summer	The old flowers should be cut off, thus trimming the shoots slightly.
Hibiscus	Syrian Mallow	Spring	Very little pruning is necessary, merely trim the bushes into shape.
Hydrangea Hortensis	Hydrangea	Autumn	Thin out some of the oldest shoots after flowering.
Hydrangea paniculata grandiflora	Panicled Hydrangea	Spring	Cut the shoots hard back to force others to develop ; these will bear fine flower heads in autumn.
Hypericum	St. John's Wort	Spring	The commonest kind, <i>Hypericum calycinum</i> , should be cut almost to the ground in March ; other shrubby kinds should be cut well back and weak shoots cut out.
Iberis	Evergreen Candytuft	Summer	Cut back the plants after the flowers have faded to keep them compact.
Ilex	Holly	Spring and summer	Holly hedges should be clipped in April and in August.

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<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
<i>Jasminum nudiflorum</i>	Winter Jasmine	Spring	Cut back the shoots well after the flowers are over. The white summer flowering <i>Jasmine (officinale)</i> should be pruned in early spring by thinning out crowded shoots.
<i>Juglans</i>	Walnut	Summer	This tree needs no regular pruning except when young; then the branches must be kept well apart and the leading shoot clear.
<i>Kalmia latifolia</i>	Calico Bush	Summer	Cut off the old flower heads.
<i>Kerria japonica</i>	Jew's Mallow	Summer	Some of the old branches may be cut out after flowering.
<i>Laurus nobilis</i>	Bay Laurel	Summer	Merely prune sufficiently to keep the bushes shapely.
<i>Lavendula</i>	Lavender	September	Trim the plants back when the flowers have been gathered.
<i>Leycesteria formosa</i>	Pheasant Berry	Spring	Remove old shoots or prune hard if grown for the sake of the bright green bark.
<i>Ligustrum</i>	Privet	Spring and summer	Privet hedges need clipping frequently between April and September.
<i>Lonicera</i>	Honey-suckle	Summer or autumn	Thin out some of the weakest shoots.
<i>Lupinus arboreus</i>	Tree Lupin	Spring	The branches are often cut back by frost; if not they should be shortened in spring.
<i>Magnolia</i>	Lily Tree	Summer	Only prune sufficiently to keep the bushes shapely while young.
<i>Morus</i>	Mulberry	Summer	Merely prune to keep the trees reasonably shapely.
<i>Myrtus</i>	Myrtle	April	The Myrtles need no regular pruning.

<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Olearia	Daisy Bush	April and summer	Branches that destroy the symmetry of the bushes may be cut out in April; otherwise merely trim over, removing flowers when these have faded.
Osmanthus		Summer	Merely cut out shoots that spoil the shape of the bush.
Passiflora	Passion Flower	Spring	When there is no room for the shoots to extend shorten those of the previous year in spring to two or three buds.
Pernettya	—	Spring	Cut out a few of the oldest branches occasionally.
Philadelphus	Mock Orange	Summer	When the flowers have faded cut out some of the oldest branches to make room for fresh ones.
Phyllostachys	Bamboo	April	Cut out the oldest stems. This advice also applies to <i>Arundinaria</i> .
Pieris	—	Summer	Cut off the flower heads when the blooms have faded.
Populus	Poplar	Winter	When the Lombardy Poplar is used as a screen tree it may be pruned hard in winter.
Prunus	Cherry, Plum, etc.	Winter	The only systematic pruning required by the ornamental <i>Prunus</i> is to cut out old branches or parts of them when they can be dispensed with, and by shortening the side shoots of the previous year's growth.
Pyrus	Apple and Pear	Winter	The directions given for pruning <i>Prunus</i> apply to <i>Pyrus</i> also.

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<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Rhododen-dron	—	Summer	Merely remove the old flower heads. If bushes are outgrowing their space they should be hard pruned in March
Rhus typhina	Stag's Horn Sumach	Spring	Only when the Stag's Horn Sumach is grown to produce large leaves annually is hard pruning necessary. Otherwise regular pruning is not required.
Ribes	Flowering Currant	Summer	When the flowers have faded some of the older branches or parts of them may be cut out if necessary.
Robinia	False Acacia	Winter	Robinia Pseudacacia is often cut hard back in spring when garden space is restricted.
Rosa	Rose	Spring and autumn	Dwarf bush and standard Roses are pruned in March and April. Rambling Roses are pruned when the blooms have faded by cutting out the old stems.
Rosmarinus	Rosemary	Summer	Prune the shoots after the flowers are over if the bushes are becoming unshapely.
Rubus	Bramble	Autumn	The old stems are cut out to make way for the fresh ones.
Salix	Willow	Spring	Willows grown for the sake of their coloured bark in winter are cut down in spring.
Sambucus	Elder	Spring	The golden Elder is often grown for decorative effect. It should be hard pruned in spring.
Spartium junceum	Spanish Broom	Spring	Shorten the shoots in March.

<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Spiraea	Shrubby Spiraea	Spring and early summer	The late flowering shrubby Spiraeas, such as <i>japonica</i> and <i>Menziesii</i> , are pruned hard in spring. Spring-flowering Spiraeas are pruned after flowering by thinning out the oldest shoots.
Symphoricarpos	Snowberry	Winter	Little pruning is necessary except to keep the bushes within bounds and to cut out some of the oldest branches occasionally.
Syringa	Lilac	Summer	When the flowers have faded thin out weakly shoots and crowded branches. Remove all sucker growths from the stock.
Tamarix	Tamarisk	Spring	Tamarix <i>pentandra</i> which blooms in late summer should be hard pruned in spring. Those that bloom in spring may be shortened to some extent when the flowers are over.
Taxus baccata	Yew	Summer	Yew hedges should be clipped in April and again in August.
Tecoma	Trumpet Flower	Spring	Cut back last year's shoots to within a few buds of where they started to grow the previous spring.
Thuya	Arbor Vitae	Summer	This Conifer is often planted as a hedge, and then should be clipped once or twice in summer.
Ulex	Gorse	Summer	The shoots or branches may be shortened after the chief flowering season is over.

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<i>Botanical Name</i>	<i>Popular Name</i>	<i>When to Prune</i>	<i>How to Prune</i>
Veronica	Shrubby Speedwell	Summer	These shrubs need no regular pruning, though they may be trimmed into shape after the blooms have faded.
Viburnum	Gelder Rose	Summer	These shrubs do not need to be pruned regularly, but the branches may be cut back as is necessary to preserve shapely bushes, this being done after the flowering season.
Vitis	Vine	Winter	The side shoots on the main stem should be pruned hard in winter if grown against a wall and it is necessary to keep them within certain limits.
Wistaria	Wistaria	Summer and winter	Allow a number of main branches to develop; prune the side or secondary shoots in summer and shorten them again in winter to within two or three buds.
Zenobia	—	Summer	Cut off the flower heads and tips of the branches as soon as blooms have faded.

PLANTS FOR SHADY BORDER

<i>Botanical Name</i>	<i>Popular Name</i>
<i>Aconitum Napellus</i>	Monkshood
<i>Anemone japonica</i>	Japanese Anemone
<i>Aquilegia</i>	Columbine
<i>Artemisia lactiflora</i>	Wormwood
<i>Asperula odorata</i>	Woodruffe
<i>Aster</i>	Michaelmas Daisy
<i>Caltha</i>	Marsh Marigold
<i>Campanula grandis</i>	Large Bellflower
<i>Campanula latifolia</i>	Broad Leaved Bellflower
<i>Campanula Medium</i>	Canterbury Bell
<i>Campanula persicifolia</i>	Peach-leaved Bellflower
<i>Cardamine pratensis plena</i>	Double Cuckoo Flower
<i>Centranthus coccineus</i>	Valerian
<i>Convallaria majalis</i>	Lily of the Valley
<i>Dielytra spectabilis</i>	Bleeding Heart
<i>Digitalis purpurea</i>	Foxglove
<i>Doronicum excelsum</i>	Leopard's Bane
<i>Epilobium angustifolium</i>	Willow Herb
<i>Funkia</i>	Plantain Lily
<i>Helleborus</i>	Christmas and Lenten Roses
<i>Hemerocallis</i>	Day Lily
<i>Hepatica angulosa</i>	Hepatica
<i>Lilium speciosum</i>	Japanese Lily
<i>Lobelia cardinalis</i>	Scarlet Lobelia
<i>Lupinus polyphyllus</i>	Lupin
<i>Lythrum roseum</i>	Loosestrife
<i>Meconopsis cambrica</i>	Welsh Poppy
<i>Megasea cordifolia</i>	Large-leaved Saxifrage
<i>Mertensia virginica</i>	Virginian Cowslip
<i>Mimulus</i>	Musk

<i>Botanical Name</i>	<i>Popular Name</i>
<i>Myosotis</i>	Forget-me-not
<i>Phlox decussata</i>	Late Summer Phlox
<i>Polemonium</i>	Jacob's Ladder
<i>Polygonatum multiflorum</i>	Solomon's Seal
<i>Polygonum affine</i>	Knotweed
<i>Primula Auricula</i>	Auricula
<i>Primula denticulata</i>	Himalayan Primrose
<i>Primula japonica</i>	Japanese Primrose
<i>Primula vulgaris</i>	Primrose and Polyanthus
<i>Ranunculusaconitifolius</i> fl. pl.	Bachelor's Buttons
<i>Rudbeckia</i> Golden Glow	Double Coneflower
<i>Spiraea Aruncus</i>	Goat's Beard
<i>Thalictrum aquilegifolium</i>	Meadow Rue
<i>Tiarella cordifolia</i>	Foam Flower
<i>Tradescantia virginica</i>	Spiderwort
<i>Trillium grandiflorum</i>	Wood Lily
<i>Trollius</i>	Globe Flower
<i>Vinca major</i> ,	Periwinkle

SELECTIONS OF ROSES

SINGLE ROSES

<i>Name</i>	<i>Colour</i>
Glowworm	Orange rose
Isobel	Carmine rose
Irish Elegance	Orange scarlet
Irish Fireflame	Crimson and yellow shades
K. of K.	Bright red
Mrs. Oakley Fisher	Apricot buff
Red Letter Day	Intense scarlet red
Rosa Moyesii	Rose red

BEST 24 GARDEN ROSES

Name	Colour
Alexander Emslie	Crimson
Caroline Testout	Rose pink
Charles E. Shea	Pink
Frances Gaunt	Pale apricot
General McArthur	Red
*Golden Emblem	Yellow
Gorgeous	Rose and orange yellow
Gustav Grunerwald	Carmine pink
Harry Kirk	Sulphur yellow
Hoosier Beauty	Crimson
Lady Pirrie	Copper and salmon
La Tosca	Silvery pink
Lieutenant Chauré	Crimson
Los Angeles	Coral pink
Madame Abel Chatenay	Salmon pink
Madame Caristie Martel	Pale yellow
*Madame E. Herriot	Reddish copper
Madame Léon Pain	Silvery rose
Mrs. Henry Morse	Cream and rose red
Ophelia	Rose and salmon
Padre	Copper red and yellow
Pharisaer	Pale rose and salmon
Prince de Bulgarie	Rose and salmon
Richmond	Red

With the exception of those marked () all those named above are Hybrid Teas.*

HYBRID MUSK ROSES

Danaë	Pale yellow
Moonlight	White
Pax	White
Trier	White

HYBRID PERPETUAL ROSES FOR THE GARDEN

Name	Colour
Alfred Colomb	Red
Captain Hayward	Scarlet crimson
Duke of Edinburgh	Bright crimson
Fisher Holmes	Crimson scarlet
Frau Karl Druschki	White
General Jacqueminot	Bright red
Hugh Dickson	Red
Louis Van Houtte	Deep crimson
Mrs. John Laing	Pink
Ulrich Brunner	Cherry red

TEA ROSES FOR THE GARDEN

Anna Ollivier	Pale rose and buff
Lady Hillingdon	Orange yellow
Lady Roberts	Apricot yellow
Molly Sharman Crawford	Greenish white
Mrs. Herbert Stevens	White
W. R. Smith	Rose and white

SWEET BRIARS

Anne of Geierstein	Crimson
Flora McIvor	White and rose
Jeannie Deans	Bright red
Julie Mannerling	Pink
Lady Penzance	Copper
Lucy Bertram	Crimson and white

MOSS ROSES

Blanche Moreau	White
Crested Moss	Pale rose
Common Moss	Pale rose
White Bath	White

CLIMBING ROSES

(Wichuraiana or Dorothy Perkins type)

Name	Colour
Alberic Barbier	Yellow fading to white
Aviateur Blériot	Saffron yellow
Chatillon Rambler	Pale rose
Dorothy Dennison	Pale pink
Dorothy Perkins	Rose pink
Emily Gray	Yellow
Excelsa	Crimson
Hiawatha	Crimson
Minnehaha	Rose pink
Paul's Scarlet Climber	Scarlet
Sander's White	White
Shower of Gold	Orange yellow
Yvonne	Pale pink

(Multiflora or Crimson Rambler type)

American Pillar	Rose
Blush Rambler	Apple blossom pink
Crimson Rambler	Bright red
Goldfinch	Yellow
Tausendschön	Rose pink
Tea Rambler	Copper and rose pink

Climbing Tea and Hybrid Tea

Ards Pillar	Crimson
Bouquet d'or	Buff yellow
Climbing Caroline Testout	Pale rose
Climbing Lady Ashtown	Rose pink
Climbing Richmond	Red
Gloire de Dijon	Buff yellow
Grüss an Teplitz	Bright red
Lady Waterlow	Pale salmon pink
Madame Alfred Carrière	White with blush shading

CLIMBING ROSES (*continued*)

Name	Colour
Madame Bérard	Buff, salmon and yellow
Noella Nabonnand	Crimson rose
William Allen Richardson	Orange yellow

DWARF POLYANTHA ROSES

Canarienvogel	Yellow
Coral Cluster	Coral pink
Eblouissant	Crimson
Edith Cavell	Bright red
Evelyn Thornton	Pink
Jessie	Crimson
Katherine Zeimet	White
Mrs. Cutbush	Pink
Orleans	Rose crimson

ROSES FOR STANDARDS

Caroline Testout	Pale rose
Dean Hole	Salmon and carmine
Fisher Holmes	Crimson
Frau Karl Druschki	White
General McArthur	Red
Gustav Grunerwald	Carmine rose
Harry Kirk	Light yellow
Lady Ashtown	Light rose
Lady Hillingdon	Orange yellow
Lady Pirrie	Copper and rose shades
Madame Léon Pain	Pale salmon rose
Madame Ravary	Pale yellow
Marquise de Sinety	Shades of red and yellow
Ophelia	White shaded rose and yellow
Prince de Bulgarie	Rose shaded yellow

FRAGRANT ROSES

Name	Colour
Admiral Ward	Crimson
Avoca	Crimson
Chrissie Mackellar	Rose and yellow
Dr. O'Donel Browne	Carmine rose
Columbia	Rose
Duchess of Wellington	Orange yellow
General McArthur	Red
George Dickson	Crimson
Grüss an Teplitz	Red
Hadley	Crimson
La France	Pale rose
Lady Alice Stanley	Rose
Laurent Carle	Dull red
Lieutenant Chauré	Crimson
Madame A. Chatenay	Salmon pink
Madame Ravary	Light yellow
Mrs. A. Tate	Reddish copper
Mrs. Charles Russell	Carmine rose
Mrs. E. Hicks	Palest rose
Mrs. Norwood	Pink
Margaret D. Hamill	Yellow
Ophelia	Rose with yellow shading
Pharisaer	Rose white
Richmond	Red
Viscountess Folkestone	Salmon pink

DARK ROSES

Admiral Ward	Dinah
Charles Lefebvre	Hoosier Beauty
Château de Clos Vougeot	Louis Van Houtte
Commandant Faure	Prince Camille de Rohan

CRIMSON ROSES

Avoca	Hadley
Dora Van Tets	Princess Mary
C. V. Haworth	W. C. Gaunt
Col. O. Fitzgerald	

RED ROSES

Captain Hayward	Hugh Dickson
Donald McDonald	Liberty
Duke of Edinburgh	Mrs. E. Powell
Fisher Holmes	Red Letter Day
General Jacqueminot	
General McArthur	Richmond

WHITE ROSES

Frau Karl Druschki	Peace
K. A. Victoria	White Maman Cochet
Molly S. Crawford	
Mrs. H. Stevens	White Killarney

ORANGE OR DEEP YELLOW

Christine	Rayon d'or
Constance	Lady Hillingdon
Duchess of Wellington	
Golden Emblem	Mrs. Wemyss Quin

PALE OR LIGHT YELLOW

A. Hill Gray	Madame Caristie Martel
Harry Kirk	Madame Ravary
Jeanne Philippe	Margaret Dickson Hamill
Madame Bardou Job	Melody

ROSE OR PINK

Antoine Rivoire	Madame A. Chatenay
C. E. Shea	Madame Léon Pain
Caroline Testout	Madame Segond Weber
Duchess of Westminster	Mrs. B. Walker
Gustav Grunerwald	Mrs. J. Laing
Konigin Carola	Mrs. Tate
La France	Prince de Bulgarie
La Tosca	Pharisaer
Lady Stanley	Ophelia
Lady Ashtown	Viscountess Folkestone

HARDY PLANTS

WITH REDDISH FLOWERS

Name	Flowering Season	How to Increase	Height
Aster, Mrs. J. F. Rayner (Michaelmas Daisy)	Sept.—Oct.	Divide rootstock in Nov.—Feb., or take cuttings in spring	5 feet
Chrysanthemum Goacher's Crimson (Border Chrysanthemum)	Sept.—Oct.	Take cuttings in Feb.—March	2½—3 feet
Geum Mrs. Bradshaw (Scarlet Geum)	June—Sept.	Best grown from seed in spring	1½ feet
Heuchera sanguinea splendens (Alum Root)	June—Aug.	Divide rootstock in Oct. or March	1½ feet
Lychnis chalcedonica (Scarlet Lychnis)	July—Aug.	Divide rootstock in Nov.—Feb.	3 feet
Monarda didyma (Bee Balm)	Summer	Divide rootstock in Nov.—Feb.	2½—3 feet
Papaver Royal Scarlet (Oriental Poppy)	July	Divide rootstock in March	3½ feet
Phlox Coeruleo-purpurea (Late Summer Phlox)	Aug.—Oct.	Divide rootstock in Nov.—Feb., or take cuttings in April—May	3 feet

Name	Flowering Season	How to Increase	Height
Phlox Etna (Late Summer Phlox)	Aug.—Oct.	Divide rootstock in Nov.—Feb. or take cuttings in April—May	3½ feet
Potentilla Louis van Houtte (Cinquefoil)	Summer	Divide rootstock in Nov.—Feb.	1½—2½ feet
Pyrethrum coccineum James Kelway	May—June, and in autumn if plants are watered and dead flowers cut off	Divide rootstock in March	2—2½ feet

HARDY PLANTS WITH ROSE-PINK FLOWERS

Anemone japonica elegans (Japanese Anemone)	Aug.—Sept.	Divide the root-stock or cut the fleshy roots in March	2—3 feet
Aster Perry's Favourite (Michaelmas Daisy)	September	Divide the root-stock, or take cuttings in March or April	2 feet
Astilbe Davidii (Spiraea)	August	Divide the clumps in autumn	3—4 feet
Chrysanthemum Mme. Marie Masse (Border Chrysanthemum)	Sept.—Oct.	Divide the root-stock or take cuttings in Feb. and March	2 feet
Dicentra spectabilis (Bleeding Heart)	June—July	Divide the root-stock in autumn	2 feet
Heuchera Rosamunde (Alum Root)	June—Aug.	Divide the root-stock in Oct. or March	2 feet
Lupinus polyphyllus roseus (Rose Lupin)	June—July	Divide the root-stock in Nov.—Feb.	3 feet
Lychnis viscaria splendens plena (Double Campion)	June—July	Divide rootstock in Nov.—Feb.	1½ feet
Papaver orientale Jeannie Mawson (Oriental Poppy)	June	Divide rootstock in March	2½ feet
Phlox Elizabeth Campbell (Late Summer Phlox)	Aug.—Oct.	Divide rootstock in Nov.—Feb., or take cuttings in April—May	2½ feet

Name	Flowering Season	How to Increase	Height
Pyrethrum Kreimhilde Agnes M. Kelway	May—June, also in the autumn if the plants are watered and dead flowers cut off	Divide rootstock in March	2-2½ feet
Sidalcea Listeri (Grecian Mallow)	July—Aug.	Divide rootstock in Nov.—Feb., or take cuttings in spring	3 feet

HARDY PLANTS WITH BLUE OR PURPLE-BLUE FLOWERS

<i>Anchusa italicica</i> , Dropmore variety (Italian Alkanet)	June—Aug.	Cut up fleshy roots in Sept.—Oct.	4-5 feet
<i>Aster</i> , Beauty of Colwall (Double Michaelmas Daisy)	September	Take cuttings in March—April, or divide rootstock in Nov.—Feb.	4-5 feet
<i>Campanula persicifolia</i> (Peach-leaved Bell- flower)	June—Aug.	Divide rootstock in autumn. Sow seeds in May— Sept.	2-3 feet
<i>Delphinium hybridum</i> (Perennial Larkspur)	June—July	Divide rootstock in March	4-6 feet
<i>Iris germanica</i> [I.] (German Flag)	May	Divide rootstock in July—Aug.	1½-2½ feet
<i>Linum perenne</i> (Perennial Flax)	Summer	Divide rootstock in Nov.—Feb. or sow seeds May— June	2 feet
<i>Lupinus polyphyllus</i> (Lupin)	June—July	Divide rootstock in Nov.—Feb.	3 feet
<i>Polemonium caeruleum</i> (Greek Valerian)	May—July	Divide rootstock in Oct.—Nov.	1½ feet
<i>Salvia virgata nemorosa</i> (Purple Sage)	Aug.—Sept.	Divide rootstock Nov.—Feb.	2-2½ feet
<i>Veronica longifolia</i> (Speedwell)	July—Sept.	Divide rootstock in Nov.—Feb.	2-3 feet
<i>Veronica spicata</i> (Speedwell)	June—Aug.	Divide rootstock in Nov.—Feb.	1 foot

Hardy Plants

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HARDY PLANTS WITH YELLOW FLOWERS

Name	Flowering Season	How to Increase	Height
Achillea Eupatorium (Golden Yarrow)	July—Sept.	Divide rootstock in Nov.—Feb.	3-4 feet
Alyssum saxatile (Madwort)	March—June	Take cuttings in May	1 foot
Chrysanthemum Champ d'Or (Border Chrysanthemum)	Sept.—Oct.	Take cuttings or divide rootstock in Feb.—March	2 feet
Coreopsis grandiflora (Perennial Coreopsis)	Summer	Sow seeds for best results in May	3 feet
Gaillardia hybrida (Hybrid Gaillardia)	Summer	Sow seeds in May— Sept. Divide rootstock in Mar. Take cuttings in August	2-2½ feet
Helenium autumnale (Sneezewort)	Aug.—Sept. Sept.—Oct.	Divide rootstock in Nov.—Feb., or take cuttings in spring	6 feet
Helianthus, Miss Mellish (Prairie Sunflower)	Aug.—Sept.	Divide thick roots in Nov.—Feb.	5-6 feet
Hemerocallis aurantiaca major (Japanese Day Lily)	July—Sept.	Divide rootstock in autumn or spring	2 feet
Kniphofia, Lemon Queen (Torch Lily or Red Hot Poker)	Aug.—Sept.	Divide clumps in March	3 feet
Oenothera fruticosa (Fraser's Evening Primrose)	July—Sept.	Divide rootstock in Nov.—Feb.	1½-2 feet
Rudbeckia Autumn Glory (Autumn Cone-flower)	Sept.—Oct.	Divide rootstock in Nov.—Feb.	5 feet
Solidago canadensis (Golden Rod)	Aug.—Sept.	Divide rootstock in Nov.—Feb.	5 feet

HARDY PLANTS WITH WHITE FLOWERS

Achillea Ptarmica, The Pearl (Double Sneezewort)	July—Sept.	Divide rootstock in Nov.—Feb.	2 feet
Anemone japonica alba (White Japanese Windflower)	Aug.—Sept.	Divide clumps or thick pieces of root in March	2-3 feet
Arabis albida flore pleno (Double White Rock Cress)	April—June	Take cuttings in June	½ foot

Name	Flowering Season	How to Increase	Height
Aster Finchley White (White Michaelmas Daisy)	September	Divide rootstock in Nov.—Feb. Take cuttings in March—April	4½ feet
Campanula persicae- folia alba (Peach- leaved Bellflower)	June—Aug.	Sow seeds in May or divide root- stock in Sept.	2–3 feet
Chrysanthemum Market White (Border Chrysanthemum)	Sept.—Oct.	Take cuttings or divide rootstock in Feb.—March	3 feet
Chrysanthemum maxi- mum King Edward (Shasta Daisy)	July—Sept.	Divide rootstock in Nov.—Feb., or sow seeds in April—May	3 feet
Eremurus himalaicus (King's Spear)	May—June	Divide rootstock in September	6–8 feet
Galega officinalis alba (White Goat's Rue)	June, July August	Divide rootstock in Nov.—Feb.	3–4 feet
Gypsophila paniculata flore pleno (Double Chalk Plant)	July—Aug.	Cuttings in spring	2–3 feet
Iris sibirica alba (Siberian Flag)	May—June	Divide rootstock after flowering	2–2½ feet
Lupinus polyphyllus albus (White Lupin)	June—July	Divide rootstock in Nov.—Feb.	3 feet
Phlox Tapis Blanc (Large-flowering Phlox)	June—July	Divide rootstock in Nov.—Feb. Take cuttings in April—May	2 feet
Sidalcea candida (Colorado Mallow)	July—Sept.	Divide rootstock in Nov.—Feb.	3 feet
Spiraea Aruncus (Goat's Beard)	June—July	Divide rootstock in Nov.—Feb.	5 feet

TREES BEAUTIFULLY TINTED IN AUTUMN

Botanical Name	Popular Name	General Description	Colour or Character of Autumn Tints
Acer Reitenbachii	Reitenbach's Norway Maple	A free growing tree for all soils	Rich red, very consistent.
Amelanchier canadensis	Snowy Mespilus	A spreading tree 10 to 18 ft., beautiful with white flowers in spring	Glowing crimson and red, sometimes orange.

Trees Beautifully Tinted in Autumn 193

<i>Botanical Name</i>	<i>Popular Name</i>	<i>General Description</i>	<i>Colour or Character of Autumn Tints</i>
<i>Betula alba</i>	White Birch	Light and graceful in habit, one of the best small lawn trees	Rich yellow foliage
<i>Carya alba</i>	Shell-Bark Hickory	A beautiful foliage tree from Eastern N. America	Rich yellow.
<i>Crataegus Crus-galli</i>	Cockspur Thorn	One of the best trees for rich autumn colour	Brilliant scarlet and red.
<i>Crataegus prunifolia</i>	Scarlet Thorn	Rich red fruits in autumn preceded by white flowers in June	Rich glowing crimson, red bronze, orange and scarlet.
<i>Euonymus europaeus</i>	Spindle Tree	Rosy red fruits associated with the beautiful autumn leaves	Dark red leaves.
<i>Ginkgo biloba</i>	Maidenhair Tree	A distinct upright growing tree, suitable for small gardens.	Rich yellow foliage.
<i>Liquidambar styraciflua</i>	Sweet Gum	A distinct tree from the Eastern United States	Crimson and orange.
<i>Liriodendron tulipifera</i>	The Tulip Tree	A tree of great interest and beauty	Foliage a beautiful rich yellow colour.
<i>Nyssa sylvatica</i>	American Tupelo Tree	A rare tree which all should plant for its autumn beauty	Brilliant red, claret and orange foliage.
<i>Parrotia persica</i>	Persian Witch-Hazel	A low growing tree of great interest as a lawn specimen	An autumn study of crimson and gold.
<i>Quercus coccinea splendens</i>	Waterer's Scarlet Oak	The most reliable tall tree to plant for rich autumn colour	Brilliant red and very lasting.
<i>Taxodium distichum</i>	The Deciduous Cypress	A tree for the water-side and damp soils	Feathery foliage of rich green in summer and glowing brown in autumn.
<i>Zelkova crenata</i>	Caucasian Keaki	A picturesque tree with a short trunk branching into numerous upright growing limbs	Rich yellow, Elm-like leaves.

SHRUBS BEAUTIFULLY TINTED IN AUTUMN

<i>Botanical Name</i>	<i>Popular Name</i>	<i>General Description</i>	<i>Colour or Character of Autumn Tints</i>
<i>Acer japonicum</i>	Japanese Maple	A bushy tree-like shrub of which there are several varieties	Usually rich crimson.
<i>Acer palmatum</i>	Cut-leaved Japanese Maple	There are many varieties with attractive cut-leaved foliage	The best forms are rich red.
<i>Berberis Thunbergii</i>	Thunberg's Barberry	Dwarf spreading bushes 3 to 6 ft.	The small leaves are brilliant red.
<i>Berberis vulgaris</i>	Common Barberry	6 to 10 ft. or more	Rich red foliage and coral fruits.
<i>Cornus sanguinea</i>	Common Dogwood	6 to 12 ft., suitable for the mixed shrubbery.	Dark red, showy in southern hedge-rows.
<i>Disanthus cercidifolia</i>	A Japanese Witch-Hazel	A comparatively new shrub said to grow eventually 8 to 10 ft. high	Claret-red suffused with orange.
<i>Enkianthus campanulatus</i>	Deciduous Heath	A peat-loving shrub	Golden and red in autumn.
<i>Fothergilla major</i>	American Fothergilla	Plant in peaty soil, attractive white flowers in spring	Rich yellow foliage.
<i>Oxydendron arboreum</i>	Sorrel Tree	A tree-like shrub closely allied to Andromeda	Shades of red.
<i>Pyrus arbutifolia</i>	Chokeberry	5 to 8 ft., from Eastern N. America, cultivated in Britain since 1700	Red foliage and fruits.
<i>Pyrus crataegifolia</i>	Thorn-leaved Pyrus	Beautiful bush of white flowers in June	Orange scarlet.
<i>Rhus cotinoides</i>	Chittam Wood	One of the best tree shrubs with glorious autumn colour	Glowing scarlet, claret, and orange.
<i>Rhus trichocarpa</i>	Japanese Sumach	Usually a bush in this country, but a small tree in Japan	Orange scarlet.
<i>Rhus typhina</i>	Stag's Horn Sumach	Should be pruned in spring to keep it a shapely bush	Orange, red and purple.
<i>Ribes aureum</i>	The Buffalo Currant	Aurantiacum is an equally attractive autumn bush	Attractive brown or bronze red.

Best Berried Small Trees and Shrubs 195

<i>Botanical Name</i>	<i>Popular Name</i>	<i>General Description</i>	<i>Colour or Character of Autumn Tints</i>
Rhododendron	Ghent and Mollis Azaleas	Many varieties of these valuable garden plants have beautiful autumn foliage.	Shades of orange, bronze, copper, red, crimson and glowing brown.
Vaccinium corymbosum	Swamp Blueberry	The best known Vaccinium of our gardens, thrives in peaty soil	Beautiful shades of red.
Viburnum Opulus	Guelder Rose	A native British shrub with glowing red fruits	Leaves change to rich red before they fall.
Vitis Coignetiae	Japanese Vine	A climber for pergolas and trailing over trees	Brilliant scarlet and crimson.
Vitis inconstans	Veitch's Ampelopsis	A self-clinging wall climber	Shades of red and crimson.
Vitus quinquefolia	Virginian Creeper	A climber for verandas and arbours	Crimson.

THE BEST BERRIED SMALL TREES AND SHRUBS

<i>Botanical Name</i>	<i>Popular Name</i>	<i>General Remarks</i>	<i>Colour and Type of Fruits</i>
Aucuba japonica	Spotted Laurel	The best town evergreen shrub	Grow shrubs with male and female flowers. Red fruits.
Berberis vulgaris	Common Barberry	A tall bush for the shrubbery.	Racemes of coral-red fruits.
Berberis Wilsonae	Mrs. Wilson's Barberry	A dwarf spreading bush	Salmon-red fruits.
Celastrus articulatus	Climbing Celastrus	Plant against a fence or over an arch.	Golden-yellow fruits opening to reveal shining scarlet seeds.
Clerodendron trichotomum	Kusagi	A late-flowering tree-like bush	Blue-black fruits set in crimson calyx.
Colutea arborescens	Bladder Senna	Easily raised from seeds. 8 to 12 ft.	Inflated light brown pods.

<i>Botanical Name</i>	<i>Popular Name</i>	<i>General Remarks</i>	<i>Colour and Type of Fruits</i>
<i>Cotoneaster frigida</i>	Himalayan Coton-easter	May be trained to become a small tree	These all have shining red fruits which hang on until the New Year; there are numerous other species.
<i>Cotoneaster rotundifolia</i>	Round-leaved Cotoneaster	Semi-evergreen, 4 to 6 or 7 ft. high	
<i>Cotoneaster Simonsii</i>	Simon's Cotoneaster	Grows 10 to 12 ft. high	
<i>Crataegus Carrierei</i>	Carriere's Thorn	Fruits remain on the tree until January	Large orange-red fruits.
<i>Crataegus Crus-galli</i>	Cockspur Thorn	Beautiful in flower, fruit and autumn foliage	Deep red fruits.
<i>Crataegus orientalis</i>	Oriental Thorn	Deeply cut foliage, a pretty small tree	Coral-red, fleshy fruits.
<i>Euonymus europaeus</i>	The Spindle Tree	A popular small tree for the shrubbery	Rosy-red fruits opening to show scarlet seeds.
<i>Hippophaë rhamnoides</i>	The Sea Buckthorn	The male and female flowers are borne on different trees, both must be grown to give fruit	Orange - coloured berry not favoured by birds.
<i>Ilex Aquifolium varieties</i>	Holly	Many beautiful varieties, distinct in foliage	The male and female flowers are borne on different trees; both should be planted.
<i>Ilex Aquifolium fructu luteo</i>	Yellow-fruited Holly	Similar in growth to the Common Holly	The yellow fruits are useful for variety.
<i>Lonicera Maackii</i>	Maack's Bush Honeysuckle	A Chinese shrub with white flowers	Red fruits the size of Peas.
<i>Lonicera translucens</i>	Transparent-Fruited Honey-suckle	A most interesting bush in fruit	White, Currant-like, transparent.
<i>Lycium chinense</i>	Chinese Box Thorn or Tea Tree	A shrub for walls and hedges	Oblong, orange-scarlet berries.
<i>Pernettya mucronata</i>	Magellan Heath	Plant in peaty soil, 3 to 5 ft.	Numerous coloured fruits, white, pink, rose, lilac dark purple.
<i>Pyracantha augustifolia</i>	Narrow-leaved Pyracantha	Fruits ripen in January; it is not very hardy	Orange-yellow berries.

<i>Botanical Name</i>	<i>Popular Name</i>	<i>General Remarks</i>	<i>Colour and Type of Fruits</i>
<i>Pyracantha Gibbsii</i>	Gibb's Pyracantha	A new species from China	Rich red fruits the size of Peas.
<i>Pyracantha Lelandii</i>	Fire Thorn	A favourite tree on walls and fences	Orange - scarlet fruits in great profusion.
<i>Pyrus baccata</i>	Siberian Crab	An apple-like tree when in flower	Bright red fruits, good in January.
<i>Pyrus Aucuparia</i>	Mountain Ash	A popular tree for small gardens	Clusters of red fruits.
<i>Pyrus Ringo</i>	Japanese Crab	Pretty in flower and fruit	Golden - yellow fruits in quantity.
<i>Rosa canina</i>	Common Dog-Rose	There are many Wild Roses with showy fruits	Red fruits. The Scotch Rose has black fruits.
<i>Skimmia japonica</i>	Dwarf Laurel	Plant one bush with male flowers among five or six with female flowers	Red fruits; sometimes grown in pots.
<i>Symplocarpus racemosus</i>	Snowberry	Obtain the best variety with very large fruits	The best shrub with snow-white fruits.
<i>Viburnum betulifolium</i>	The Betula-leaved Viburnum	A new species from China	Shining red fruits.
<i>Viburnum Opulus</i>	Gelder Rose	A hedgerow shrub of great beauty	Clusters of glistening red fruits.

EVERGREEN SHRUBS

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Flowering Season</i>	<i>Colour of Flowers</i>
<i>Arbutus Unedo</i>	Strawberry Tree	October to December	White or pink tinted.
<i>Arundinaria nitida</i>	Shining Bamboo	Very rarely flowers	Grass-like flower and fruit.
<i>Aucuba japonica</i>	Spotted Laurel	March, April	Green and dark purple.
<i>Berberis Aquifolium</i>	Mahonia	February to April	Golden yellow.
<i>Berberis Darwinii</i>	Darwin's Barberry	April, May	Orange yellow.
<i>Berberis stenophylla</i>	Hybrid Barberry	April, May	Golden yellow.
<i>Buxus sempervirens</i>	Box	March to May	Greenish yellow.

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Flowering Season</i>	<i>Colour of Flowers</i>
<i>Ceanothus thyrsiflorus</i>	Californian Lilac	May and June	Pale blue.
<i>Choisya ternata</i>	Mexican Orange Flower	April to September or longer	Pure white.
<i>Cistus cyprius</i>	Rock Rose	June and July	White, dark red central blotches. Small white.
<i>Cotoneaster buxifolia</i>	Box-leaved Cotoneaster	End May and June	
<i>Erica lusitanica</i>	Tree Heath	January to April	White.
<i>Erica mediterranea</i>	Mediterranean Heath	March to May	Rosy red.
<i>Escallonia langleyensis</i>	Hybrid Escallonia	June to August or later	Rosy carmine.
<i>Euonymus japonicus</i>	Evergreen Spindle-Bush	June	Greenish yellow, small.
<i>Fatsia japonica</i>	Japanese Aralia	October to December	White.
<i>Ilex Aquifolium</i>	Common Holly	May	Greenish yellow, small.
<i>Laurus nobilis</i>	Sweet Bay or Bay Laurel	May	Greenish yellow.
<i>Lavandula spica</i>	Lavender	July and August	Lavender.
<i>Ligustrum lucidum</i>	Laurel-leaved Privet	August, September	White.
<i>Lonicera nitida</i>	Shrubby Honeysuckle	June	Creamy white.
<i>Olearia Haastii</i>	Daisy Bush	August	White.
<i>Pieris floribunda</i>	Andromeda	March, April	White.
<i>Prunus Laurocerasus</i>	Common Laurel	April	White.
<i>Prunus lusitanica-cus</i>	Portugal Laurel	June	White.
<i>Pyracantha coccinea</i>	Evergreen Hawthorn	Early June	White.
<i>Rhododendrons of sorts</i>	Hybrid Rhododendron	January to July	Very many colours.
<i>Rosmarinus officinalis</i>	Rosemary	May	Pale violet-blue and white.
<i>Taxus baccata</i>	Common Yew	March, April	Insignificant.
<i>Veronica Traversii</i>	Shrubby Speedwell	July	White.
<i>Viburnum Tinus</i>	Laurustinus	Winter	
<i>Yucca gloriosa</i>	Adam's Needle	July to September	Creamy white.
<i>Yucca filamentosa</i>	Dwarf Adam's Needle	July, August	Creamy white.

DECIDUOUS (LEAF-LOSING) FLOWERING SHRUBS

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Flowering Season</i>	<i>Colour of Flowers</i>
<i>Aesculus macrostachya</i>	Shrubby Horse-Chestnut	July, August	White.
<i>Amelanchier oblongifolia</i>	Swamp Sugar Pear	April	White.
<i>Buddleia globosa</i>	Chilian Buddleia	June	Yellow.
<i>Buddleia variabilis</i>	Chinese Buddleia	July to October	Lilac to purple.
<i>Ceanothus Gloire de Versailles</i>	Autumn-flowering Ceanothus	July to September	Rich blue.
<i>Cercis Siliquastrum</i>	Judas Tree	April, May	Purplish rose.
<i>Chimonanthus fragrans</i>	Winter Sweet	November to March	Pale yellow.
<i>Colutea arborescens</i>	Bladder Senna	June to August	Yellow.
<i>Cotoneaster multiflora</i>	Many-flowered Rose Box	May, June	White.
<i>Cydonia japonica</i>	Japanese Quince	December to June	Scarlet.
<i>Cytisus albus</i>	White Spanish Broom	May	White.
<i>Cytisus purpureus</i>	Purple Broom	May	Purple.
<i>Cytisus scoparius</i>	Common Broom	May	Yellow.
<i>Daphne Mezereum</i>	The Fragrant Mezereon	February, March	Purplish red.
<i>Deutzia crenata fl. pl.</i>	Double Deutzia	June, July	Pink and white varieties.
<i>Deutzia discolor</i>	Diverse-coloured Deutzia	May, June	White and pink.
<i>Deutzia gracilis</i>	White Deutzia	May, June	Pure white.
<i>Diervilla Abel Carriere</i>	Rosy Weigela		Rosy carmine
<i>Diervilla Eva Rathke</i>	Red Weigela	May, June	Blood-red.
<i>Diervilla Mont Blanc</i>	White Weigela		Pure white.
<i>Escallonia Philippiana</i>	Valdivian Escallonia	June, July	White.
<i>Forsythia spectabilis</i>	Golden Bell Bush	March, April	Golden yellow.
<i>Fothergilla major</i>	Allegheny Fothergilla	May	White.

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Flowering Season</i>	<i>Colour of Flowers</i>
<i>Fuchsia corallina</i>			Carmine red.
<i>Fuchsia gracilis</i>			Crimson.
<i>Fuchsia Riccartoni</i>	Hardy Fuchsias	June or July to October	Red.
<i>Genista hispanica</i>		May, June	Golden yellow.
<i>Genista tinctoria fl. pl.</i>	Spanish Gorse Double Dyer's Greenwood	June to September	Yellow.
<i>Hamamelis arborea</i>	Witch-Hazel	January and February	Rich yellow.
<i>Hamamelis mollis</i>	Chinese Witch-Hazel	December to February	Golden yellow.
<i>Hibiscus syriacus</i>	Shrubby Mallow	August to October	White, purple, rose, etc.
<i>Hydrangea Hortensia</i>	Japanese Hydrangea	July to September	Pink.
<i>Hydrangea paniculata grandiflora</i>	Panicled Hydrangea	August, September	White.
<i>Hypericum calycinum</i>	Rose of Sharon	June to September	Yellow.
<i>Hypericum Henryi</i>	Henry's Rose of Sharon	July to September	Yellow.
<i>Kerria japonica fl. pl.</i>	Double Jew's Mallow	April, May	Yellow.
<i>Magnolia stellata</i>	Starry Magnolia	March and April	White.
<i>Philadelphus coronarius</i>	Mock Orange		
<i>Philadelphus Lemoinei erectus</i>	Lemoine's Mock Orange	June and early July	Pure white.
<i>Philadelphus microphyllus</i>	Small-leaved Mock Orange		
<i>Philadelphus Virginale</i>	Double-Mock Orange		
<i>Prunus japonica fl. pl.</i>	Dwarf Japanese Cherry	Early May	Pink and white.
<i>Prunus triloba fl. pl.</i>	Double-flowered Apricot	End March, April	Rose.
<i>Pyrus floribunda</i>	Japanese Crab	April, early May	Pale pink.
<i>Pyrus spectabilis</i>	North China Crab	April to early May	Blush rose.
<i>Rhododendron Hybrids</i>	Evergreen Rhododendrons	January to June	All colours.
<i>Rhododendron molle</i>	Mollis Azaleas	May	Red and yellow shades.
<i>Rhododendron flavum</i>	Yellow Azalea	May	Yellow.
<i>Rhododendron racemosum</i>	Small-flowered Rhododendron	May	Blush white.

Deciduous Flowering Shrubs 201

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Flowering Season</i>	<i>Colour of Flowers</i>
<i>Ribes aureum</i>	Buffalo Currant	April	Golden yellow.
<i>Ribes sanguineum</i>	Flowering Currant	April	Rosy red.
<i>Rosa Hugonis</i>	Hugo's Rose	May	Yellow.
<i>Rosa Moyesii</i>	Moyes's Rose	June, July	Lurid dark red.
<i>Rosa spinosissima</i> vars.	Scotch Rose	June	White, pink, yellow, etc.
<i>Sophora vicifolia</i>	Vetch-flowered Sophora	June	Bluish white.
<i>Spartium junceum</i>	Spanish Broom	June to September	Rich yellow.
<i>Spiraea arguta</i>	Shrubby Meadow Sweet	April, May	White.
<i>Spiraea japonica</i> Anthony Waterer	Waterer's Red Spiraea	July to September	Carmine red.
<i>Spiraea prunifolia</i> f. pl.	Double Shrubby Spiraea	Late April, May	White.
<i>Staphylea colchica</i>	Bladder Nut	May	White.
<i>Syringa vulgaris</i> varieties	Common Lilac	May, June	Numerous colours.
<i>Syringa persica</i>	Persian Lilac	May	Lilac also white variety.
<i>Tamarix pentandra</i>	Autumn Tamarisk	August and September	Rosy pink.
<i>Tamarix tetrandra</i>	Spring Tamarisk	May	Pink.

SUMMER AND AUTUMN FLOWERS FOR THE GREENHOUSE

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour of Flowers</i>	<i>Min. Temp.</i>	<i>How to Increase</i>	<i>Details of Culture</i>
Abitillon Hybrids	Greenhouse Abutilon	Boule de Neige (white), Golden Fleece (yellow) L'Africane (crimson), Princess of Wales (pink)	45° F.	Cuttings. Can be raised from seeds	Ordinary potting soil. Also useful as climbers for the greenhouse pillars.
Achimene coccinea and numerous named sorts	Scarlet Achimenes	Scarlet, also purple, lilac, white, etc.	50° F.	Division of tubers	Equal parts loam, peat, sand and leaf-mould; pretty basket plants.
Agapanthus umbellatus	African Lily	Blue	40° F.	Division	Useful in the unheated greenhouse.
Astilbe japonica Queen Alexandra	White Spiraea Pink Spiraea	White Pink	Hardy	Division	Require plenty of water, valuable in unheated greenhouse.
Begonia, Tuberous coccinea Evansiana Metallica	Tuberous Begonias Scarlet Begonia Evan's Begonia Metallic-leaved Begonia Welton's Begonia Greenhouse Bouvardias	Many colours	45° F. to 50° F.	Seeds Cuttings Bulbils Cuttings	Ordinary loamy potting soil with a little peat, leaf-mould and coarse sand added.
Weltoniensis	Light pink Alfred Neuner (double white) Hogarth fl. pl. (double scarlet), King of Scarlets, Humboldtii corymbiflora (white), President Garfield (Double-pink)			Cuttings	
Bouvardia Hybrids			45° F. to 50° F.		Cuttings and pieces of fleshy root
					Can be rested in winter like Fuchsia; ordinary soil.

Summer and Autumn Flowers

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Botanical Name	Popular Name	Colour of Flowers	Min. Temp.	How to Increase	Details of Culture
<i>Campanula isophylla pyramidalis</i>	Hanging Bellflower Chimney Bellflower	Blue and white Blue, also white	40° F. Hardy	Cuttings Seeds	Best in hanging baskets.
<i>Canna indica</i> varieties	Indian Shot	Red, yellow, etc.	50° F.	Division and seeds	Can be grown outside until flowers begin to open. Delight in rich soil and warmth. (Sow seeds each year in a heated greenhouse in March.)
<i>Celosia plumosa</i> var. cristata	Plumed Celosia Cockscomb	Red and yellow Red and yellow	50° F. 50° F.	Seeds Seeds	
<i>Chrysanthemum</i> <i>Broussoneti</i> Mrs F. Sander	Marguerite or Paris Daisy Double	White	45° F.	Cuttings	Almost continuous flowering.
<i>Coronilla glauca</i>	Marguerite Yellow Coronilla	Yellow	40° F.	Cuttings	Can be grown in a cold glasshouse.
Dianthus Florists' Varieties	Perpetual Carnations	White Pearl, Baroness de Brienen (salmon-pink), Encchantress Supreme (pink), British Triumph (crimson), Britannia (scarlet) Blush pink, rose, etc.	45° F. to 50° F.	Cuttings and layers	Carnations require plenty of ventilation, and must not be crowded.
<i>Francoa ranosa</i>	Malmaisons Bridal Wreath	White	40° F.	Seeds	Plants can be grown from year to year.
<i>Gloxinia</i>	Gloxinia	Red, white, blue	50° F.	Seeds	Foliage dies down in autumn, but bulbs last for number of years.
<i>Heliotropium</i> peruvianum	Cherry Pie	Mauve-purple shades	45° F.	Cuttings, also seeds	Rest in winter like Fuchsias.

SUMMER AND AUTUMN FLOWERS FOR THE GREENHOUSE (*continued*)

Botanical Name	Popular Name	Colour of Flowers	Min. Temp.	How to Increase	Details of Culture
Hydrangea Hortensia	Pink Hydrangea	Pink, also white	40° F.	Cuttings	Beautiful in large tubs.
Impatiens Balsamina	Balsam	Red, white, rose, etc.	50° F.	Seeds	Needs warmth and moisture.
Lilium auratum longiflorum	Golden-rayed Lily Trumpet Lily Lancifolium Lily Scented Verbena	White, blotched and striped Pure white Rosy red and white sorts Palest mauve	Hardy Hardy Hardy Almost Hardy	Division of bulbs Division of bulbs Cuttings	Lilies are among the best plants for the cold house. Thrives in a sandy, loamy soil. Rest like Fuchsia in winter.
Lilium speciosum Lippia citrinodora					Seldom require repotting, and do not need large pots. When the flower buds show do not let growths just below them develop.
Nerine Fothergilla major and other sorts	Guernsey Lilies Oleander	Waxy red, pink, rose, etc. Red, pink, rose, white	45° F. 40° F.	Offsets from bulbs Cuttings	
Pelargonium zonale hybrids	Zonal Geranium, scented-leaved Geranium and show Pelargonium Ivy-leaved Geranium		45° F. to 50° F.	Cuttings in March and August	There is a wide selection of varieties
hederacæfolum					A glasshouse devoted to Geraniums is a delight throughout the year.

Summer and Autumn Flowers

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Botanical Name	Popular Name	Colour of Flowers	Min. Temp.	How to Increase	Details of Culture
Petunia	Petunia	Numerous colours and striped flowers	45° F.	Seed and cuttings	Petunias do not require large pots. Should be rested in winter by withholding water.
Plumbago capensis var. alba	Blue Plumbago White Plumbago	Blue White	40° F. Hardy	Cuttings Offsets and seeds	Auriculas are most interesting and easily managed plants for the cold greenhouse. Grown in pots the Giant Mignonettes are delightful and perfume the greenhouse. Grow out of doors in pots, until the flowers open
Primula Auricula		Numerous colours	45° F.	Seeds	
Reseda odorata	Giant Mignonette	Brown red, yellow, white	45° F. 45° F. to 50° F.	Seeds and cuttings	
Salvia splendens	Scarlet Sage	Scarlet	45° F. to 50° F.	Seeds	One of the best annuals for pot culture, "stop" several times when young to form bushy plants. Seldom requires potting, requires plenty of sun.
Glory of Zurich	Dwarf Scarlet Sage	Numerous shades of colour and prettily marked flowers	45° F. to 50° F.	Offsets	In pots and hanging baskets Verbenas are very showy.
Schizanthus pinnatus Wisetonensis	The Butterfly Flower		40° F. to 45° F.	Cuttings and seeds	
Vallota purpurea	Scarborough Lily	Rich red	45° F. to 50° F.		
Verbena		Salmon pink, red, blue, white, etc.	50° F.		

WINTER AND SPRING FLOWERS FOR THE GREENHOUSE

Botanical Name	Popular Name	Colour of Flowers	Min. Temp.	How to Increase	Details of Culture
<i>Acacia armata</i> <i>Drummondii</i>	Mimosa	Rich yellow Pale yellow Yellow Pink	40° F.	Cuttings	Use a little peat in the soil. Mimosas do not require large pots. Provide a warm moist atmosphere.
<i>Begonia hastulata</i>	Lorraine Begonia	Varied colours and spotted flowers	50° F.	Cuttings	May be grown in quite cool house or frame.
<i>Begonia de Lorraine</i>	Slipper Flower	Red, rosy red, pink, white, etc.	40° F.	Seeds	Often grown in a cold glasshouse.
<i>Calceolaria herbacea</i>	Japanese Camellia	Many colours	40° F.	Named varieties usually increased by grafting	For late flowering varieties not much heat is required, but plenty of ventilation.
<i>Camellia japonica</i>	Greenhouse or Japanese Chrysanthemum	White, blue, red, etc.	45° F.	Cuttings	When growing Cinerarias keep a watchful eye for greenfly.
Chrysanthemum indicum varieties	Florists' Cineraria	Orange	45° F.	Offsets and seeds	A splendid room plant.
<i>Cineraria</i>	Star Cineraria	Waxy red	40° F. to 45° F.	Cuttings	Grow in a gritty soil.
Large-flowered stellata	Imantophyllum	Vulcan (red), Butterfly (white)	45° F. to 50° F.	Seeds, old bulbs (corms),	Lasts in flower with careful watering for 4 or 5 months.
<i>Clivia miniata</i>	Scarlet Rochea	Salmon King and other colours			may be grown for several years
<i>Crassula coccinea</i>	Persian Cyclamen				
<i>Cyclamen latifolium</i> varieties	Cyclamen				

Winter and Spring Flowers

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Botanical Name	Popular Name	Colour of Flowers	Min. Temp.	How to Increase	Details of Culture
Cytisus fragrans	Fragrant Genista	Yellow	40° F. to 45° F.	Cuttings	Place outside in sum- mer. Perhaps the best of all Orchids for the cool greenhouse.
Cypripedium insigne	Slipper Orchid	Dark brown yellow	45° F.	Division	One of the most fragrant greenhouse flowers.
Daphne indica	Fragrant Daphne	Pale pink	40° F.	Cuttings	A useful plant for the cold greenhouse. By growing two or three batches it is easy to have flowers through- out the year.
Deutzia gracilis	White Japanese Deutzia	White	Hardy	Cuttings and division	An indispensable spring flower for the cold greenhouse.
Dianthus Caryophyllus hybrids	Perpetual Carnation	Many colours	45° F. to 50° F.	Cuttings	Must have a gritty soil
Dicentra (Dicentra) spectabilis	Bleeding Heart	Rose	Hardy	Division of the roots	Use a peaty soil for potting and ventilate the greenhouse freely. Flowers at Christmas in the warm green- house.
Epiphyllum truncatum	A Flowering Cactus	Rich rose	45° F.	Cuttings	One of the most inter- esting bulbous flowers for the cool green- house.
Erica gracilis hyemalis	Winter-flowering Heather	Rosy red, also white Pink and white, also pure white Red bracts	40° F. to 45° F. 50° F. to 55° F.	Cuttings	In addition to white we now have cream, lilac, blue, orange, pink, and other colours
Euphorbia pulcherrima	Poinsettia		40° F. to 45° F.	Seeds and off- sets	
Freesia refracta	Fragrant Freesia				

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WINTER AND SPRING FLOWERS FOR THE GREENHOUSE (*continued*)

Botanical Name	Popular Name	Colour of Flowers	Min. Temp.	How to Increase	Details of Culture
<i>Helleborus niger</i>	Christmas Rose	White	Hardy	Division	Indispensable winter flowers.
<i>Hippeastrum</i>	Amaryllis	Rich red, striped, etc.	50° F.	Seeds and offsets	Give this lovely bulbous plant the best position in a moist greenhouse. There are many hybrids of these beautiful cool greenhouse bulbous plants.
<i>Lachenalia pendula</i>	African Cowslip	Yellow, yellow marked with red, orange, rich green marking, etc.	40° F. to 45° F.	Offsets and new varieties from seeds	
<i>Nelsonii</i>					
<i>tricolor</i>					
<i>luteola</i>					
<i>Pelargonium zonale</i>	Single Geranium Double "	Many colours	45° F. to 50° F.	Increased very readily by cuttings	A little heat is desirable, but do not keep the house close and stuffy.
<i>fl. pl.</i>					
<i>quercifolium</i>	Scented-leaved Geranium	Red		Cuttings	Place plenty of powdered brick and mortar rubble in the soil.
<i>Phyllocactus</i>	Flowering Cactus	White, red, pink, etc., the most richly coloured and best of all flowering Cactus	40° F. to 45° F.		
<i>Hybrids</i>		Rosy red		Cuttings	Give warm, moist treatment.
<i>Plumbago rosea</i>	Red Plumbago	50° F.			
<i>Primula kewensis</i>	Kew Primrose	Yellow	45° F.	Seeds or division	
<i>malacoides</i>	Fairy Primrose	Mauve	40° F.	Seeds	
<i>sinensis</i>	Chinese Primrose	Many colours	45° F.	Seeds	
<i>stellata</i>	Star Primrose	Many colours [etc.]	45° F.	Seeds	
<i>obconica</i>	Obconica Primula	Shades of mauve, rose,	40° F.	Seeds	
<i>abyssinian</i>	Abyssinian Primrose	Pale yellow	40° F.	Seeds	
<i>verticillata</i>	Primrose				A light soil mixture of sandy loam, leaf-mould and coarse sand is the best compost. Do not keep the soil too moist in the winter.

<i>Botanical Name</i>	<i>Popular Name</i>	<i>Colour of Flowers</i>	<i>Min. Temp.</i>	<i>How to Increase</i>	<i>Details of Culture</i>
<i>Richardia</i>	Yellow Arum Lily	Rich yellow	50° F.	Division of tubers	A warm greenhouse plant.
<i>Elliottiana</i>	White Arum Lily	White	45° F.	Offsets	A perpetual flowering Arum Lily.
<i>Childsiana</i>	Indian Azaleas	"	40° F.	Cuttings	{ Deutsche Perle (white), Othello (brick red), Pauline Mardner (flesh pink), Vervaineana (rose and white), Simon Mardner (deep rose) Rosy crimson
<i>Rhododendron indicum</i> hybrids	The Pleasing Azalea	Shades of yellow and rosy red	Hardy	Cuttings	{ Grow in the cool or cold greenhouse in winter and stand the plants outside in summer, choosing a sheltered position.
	<i>Mollis Azalea</i>	Mauve	Hardy	Seeds and cuttings	
	Early Rhododendron African Hemp	White	Hardy	Cuttings	
	<i>Sparmannia africana</i>		45° F.	Cuttings	Flowers all through the winter.

MANURES FOR PLANTS, SHRUBS AND TREES

FRUITS

Name	Natural Manures	Artificial Manures	Autumn and Winter Preparation.
Apple	Every few years a liberal dressing is advisable, well forked in, not too near the tree	Lime or basic slag every 3rd year. Superphosphate 3 parts, sul. potash 1, nit. soda 1, at 3-4 oz. per sq. yd.	Lime or slag in autumn. Replace sul. potash by kainit 3 oz. every 2nd or 3rd year. Dig manure in during winter.
Black Currant	Apply manures preferably in summer, and keep them near the surface, not too close to bushes	Superphosphate 4 parts, sul. potash 2, at 3 oz. per sq. yd. in spring, or slag 4, kainit 3, at 6 oz. in winter	Apply the natural manure in spring.
Fig	Best manure for this tree is chopped up turf loam. Don't give much manure at any time, but mulch soil round tree with it in summer	Lime one year, slag the next. Bone-meal, 3 parts, sul. potash 1, makes a good mixture for hoeing into surface soil	Replace soil with turf loam frequently, root prune to check exuberant growth; keep ground firm and don't forget lime and slag.
Gooseberry, Red and White Currants	Dressings of natural manure, and keep it about limit of branches	Dissol. bones 4 parts, mur. potash 1, fishguano 2, at 4 oz. per sq. yd. round bushes. Slag every 3rd year at 6 oz. per yard	Dig in the manurial mulch applied in summer, and apply lime every 3rd year, not at the same time as slag.
Peach	Mulch the ground with manure in spring	Slag and old mortar rubbish every alternate winter. Bone-dust 6 parts, guano 4, sul. potash 1, at 4 oz. per yard	Fork up soil on surface and renew it as needed. Good turf loam should be basis of all new composts.
Pear	As for Apple, but to the mixture of fertilizers given add fish guano 4 parts.		

Manures for Plants, Shrubs and Trees 211

Name	Natural Manures	Artificial Manures	Autumn and Winter Preparation.
Plum, Cherry and Apricot	No manure to strong-growing trees, but summer mulches of short litter may be given	1½ lb. lime per sq. yd.; two years later ½ lb. slag; two years later lime again, and so on. Super, 4 parts, sul. potash 2, sul. ammonia 1, at 3 oz. per sq. yd.	Dig in manorial mulch and apply the lime or slag as directed.
Raspberry, Loganberry and Bramble	Light mulches in spring	Fish guano, 10 parts, kainit 3, sulphate of ammonia 2, at 5 oz. per yd. in Feb. or March	Apply slag or lime every second winter; dust soot round plants in early autumn; if pests are troublesome hoe away surface soil, mix with soot and hoe it back again.
Rhubarb	Plenty of good manure yearly, forked into the ground round roots	Phosphates 2 parts, sul. potash 1, at 3 oz. per root	Dig the manure in during autumn, preferably. Apply artificials in January or February.
Strawberry	Light dressings of short farmyard manure only	Superphosphate 3 parts, sul. ammonia 1, at 2-4 oz. per yd.; kainit 3 oz. per yd. in light soils only	Apply lime 1 lb. per yard in winter where plants tend to be too leafy.
Vine	Topdressings only. Turfy loam 4 parts, old cow manure 1, mortar rubbish ½ is the best compost	Bone-meal 6, sul. potash 1, top-dressed lightly in February, April, and June, and watered in	A light dusting of slag or old mortar does much good, forked lightly in. Renew surface soil frequently; let it be good and rich.

NOTE.—When manuring trees remember that the feeding roots are generally at the *extremities* of the branches or beyond, and the manures tell best there.

VEGETABLES

Name	Natural Manures	Artificial Manures	Autumn and Winter Preparation.
Asparagus	Cover over beds with short manure in Nov., but rake much off again in April	Kainit 3 oz., super. 2 oz., with fortnight applications of $\frac{1}{2}$ oz. nitrate soda while cropping	Kainit supplies all salt required by this crop, and proves better than salt alone.
Bean	Fairly liberal manuring is essential; must be dug deeply into the soil	Super. 8 parts, sul. potash 3, at 4 oz. per yd.	Lime soil for Beans beforehand and let the manure be fresh but dug in during winter.
Carrot and Parsnip	Ground should be very rich, but no fresh manure added. Short manure dug in in autumn beneficial when ground is poor	Nothing essential in rich soil except 3 topdressings of sul. ammonia 1 oz. to 5 yd. of run, from end of May	Soil not too rich may be manured in early autumn or treated in January with a good mixture of artificials.
Celery	Dig out trench, then replace with following: soil 3 parts, manure 1 part, with dustings of guano	Super. 3 parts, sul. potash 1 (or kainit 3), at 3 oz. per yd. twice. Soot frequently during summer	Get the trench ready early, and replace compost noted, rather than simply dig over the subsoil.
Cabbage, Cauliflower, Sprout, etc.	Fairly liberal supplies of natural manure well incorporated with the soil. Spring Cabbages should have none at all; grow them in plot well-manured for previous crop	Always use a mixture containing superphosphates or dissolved bones, and a little sul. potash. For Spring Cabbages apply this in February	Prepare the soil by working the manure in. Apply at least 1 lb. lime per yd. in autumn every third year.
Cucumber and Tomato	Make compost of loam 3 parts, rotted manure 1, old mortar rubble and wood ashes $\frac{1}{2}$	Super. 4, nit. soda 1, from setting of first fruit, as a topdressing	Prepare compost well before planting time. Have manure well rotted.
Leek and Onion	Rich dressings of manure applied in autumn when ground is trenched	Kainit 4 oz. per yd. followed by bone-dust 3, sul. ammonia 1, at 4 oz. per yd. in April	Apply soot and wood ashes to surface in early spring.

Manures for Plants, Shrubs and Trees 213

Name	Natural Manures	Artificial Manures	Autumn and Winter Preparation.
Lettuce, Radish and Salads	Not too much manure; rather grow in rich soil with artificials only	Super. 4 oz., sul. potash 1 oz. per yd. Water or topdress with nitrate of soda	Manure has an adverse effect on quality, if used in excess.
Peas Potato	As for Beans Manure lightly or heavily as the soil is rich or poor	Super. 4 parts, sul. potash 2, sul. ammonia 1½, in varying dressings, very profitable	We prefer delaying the addition of manure to some few weeks before planting time. Practice varies very much.
Turnip and Swede	Rotted manure applied before seed sown; in heavy land fresh manure added earlier will serve	Super. 6 parts, sul. potash 1, essential	Lime the ground in autumn every 3rd year.

FLOWERS AND SHRUBS

Annual Flowers	Manure the ground lightly but dig it well into the ground	Guano 3, bone-flour 3, sul. potash 2, sul. ammonia 1. Slag in autumn or lime is desirable every second year	Get the manure in during autumn, and fork the artificials well in at the end of winter, before transplanting.
Carnation	Dig in decayed turf, which has been stacked, with manure. Dust ground with wood ashes in spring	Super. 3 oz., sul. ammonia 1 oz. per sq. yd. Lime, old mortar, chalk or crushed shells are beneficial	Get the soil into good "heart" by forking the manurial mixture in thoroughly. Add a soil fumigant.
Chrysanthemum, Border	Manure moderately in early spring	Bone-meal, February, 3 oz. per yd.; guano 2 oz. in May. Water occasionally with saltpetre ½ oz., Epsom salts ½ oz. per gal. of water	Add natural manure or leaf-mould and dig it in in early summer.
Chrysanthemums in pots	Soil 1 bushel, slag ½ lb. (or old mortar 1 lb.), bone-meal ½ lb., wood ashes, ½ lb.	Peruvian guano 2 lb. to bushel of soil, saltpetre ½ lb., phosphate of potash ½ lb.	Give artificial fertilizers in small doses.

Name	Natural Manures	Artificial Manures	Autumn and Winter Preparation.
Herbaceous border	A light manuring with old manure and leaf-mould mixed, in February	Fishguano 8 parts, sul. potash 1, at 3 oz. per yd. in May	Lime occasionally. Every 4 or 5 years dig out the plants, manure heavily and dig over; replace plants.
Lawns	Sifted compost of equal parts soil, leaf-soil and old dry manure for patchy, starved lawns	Bone-meal 3 oz. per yd., in February. Sulphate ammonia 1-1½ oz. per yd., in April	Brush the sifted compost over the ground so as not to bury the grass; don't roll it in. Apply similar mulch of sand annually to a lawn of heavy soil.
Pot Plants	Liquid manure from rich natural stuff is excellent feeding	Saltpetre ¼ oz., phosphate of potash ½ oz. to gal., or that amount to 2-4 plants, as topdressing	Don't feed in winter, but commence after plant has made progress in growth.
Rose	Apply manure in autumn, and fork it beneath the surface	Lime or slag in autumn, also ¼ oz. sul. iron per small bush. Super. 8 parts, bone-meal 4, sul. potash 3, sul. ammonia 2, used at 2 oz. per Rose several times during growth	Apply basic slag every two or three years, in autumn.
Shrubs	Benefit from a light mulch of manure and leaves, in autumn or spring	Light dustings of bone-meal or fish guano are generally all that is required	Apply the artificials in spring.
Sweet Peas	Liberal but not excessive manuring; manure dug in to a depth of 2 ft. Cow or pig manure for light soils; horse litter for heavy land	Lime or slag in autumn. Super. 3 parts, sul. potash 1, bone dust 2, at 4 oz. per yd. run of trench in spring 2-5 weeks before planting	Sprinkle ¼ oz. sul. iron per yd. run over surface in January or February.

Manures for Plants, Shrubs and Trees 215

Name	Natural Manures	Artificial Manures	Autumn and Winter Preparation.
Viola and Pansy	Don't manure before planting unless the soil is rather poor; good rich loam produces best results	Liquid manure from super. 3 parts, saltpetre $\frac{1}{2}$ part, at 1 oz. per gallon. Apply soot to soil for good colour	If the soil is barren better mix short manure in moderate quantities with it during winter. Add fresh soot.

NOTE.—In all cases the several ingredients of a mixed fertilizer suitable for the purpose are given. It is not overlooked, however, that many excellent compounded fertilizers are available; if obtained from firms of repute they can be relied on to yield first-class results when used as directed. Every gardener ought to know enough about his plants to make his own mixtures and to vary them as his experience dictates; home-made mixtures are cheap and entirely under control of the grower.

The chemicals mentioned (superphosphate, guano, sulphate of ammonia, etc.) can be stored for years in dry tins or boxes without deterioration. A small measure (say an egg-cup) and a large one (an old mug) will then prove suitable for measuring out in small or large proportions; the fertilizers are afterwards mixed on the floor and used as needed. A small egg-cup will hold an ounce, a pint mug about 1 lb., but the quantities can be tested beforehand and any little variation will be too slight to act adversely on garden plants.

HOW TO USE LIME

*Kind of Lime	Amount to Use	When to Apply	Remarks.
Ground lime	1 lb. to 2-4 sq. yd. annually	To within a month of cropping	Easiest to apply, and best for garden purposes; fork in immediately.
Builders' Quicklime (Burnt lime, lime-shell)	1 lb. to 2 sq. yd. annually, or 1 lb. per yd. every second year	About 3 months before cropping	Slake in a heap with a minimum of water, scatter evenly, and then dig it in at leisure.
Slaked lime	1 lb. per sq. yd. every year	Do.	Scatter evenly and dig it in soon after.
Gaslime and acetylene refuse	2 lb. per sq. yd. not oftener than every second year	Autumn	Dig it in so that it may kill pests and become mellow.

<i>Kind of Lime</i>	<i>Amount to Use</i>	<i>When to Apply</i>	<i>Remarks.</i>
Gypsum or sulphate of lime	1 lb. per yd. every year	About Christmas	This can be applied along with manure. Does not cause too rank growth.
Old mortar rubbish	A spadeful per yd., or a tablespoonful per 6-inch pot	At any time	Best for potting purposes; an inactive mixture of sand and lime.
Chalk, ground chalk, limestone	Up to 2 lb. per yd.	Do.	Advisable among tender plants, or on light land.

MANURES FOR THE GARDEN

<i>Name</i>	<i>Most Suitable for</i>	<i>How Much to Use.</i>
Cow manure	Best for light to medium soils; dig it well in the ground in spring	1 cartload to 2-6 rods.
Horse manure, with straw or litter	For heavy soils; dig it in during winter, and mix well with soil 12 inches deep	1 cartload to 4-6 rods.
Pig and goat manure	Store a little before use, then dig it in. Excellent for light land	Do.
Poultry manure	Store until near cropping time, mix with soil, then fork lightly in	1 cartload to 10-12 rods.
Sheep manure	Store in tins for use as a liquid manure; poultry manure may be used likewise	1 lb. to 3-5 gallons of water.
Seaweed	Good for Potato, Onion, Cabbage and Asparagus. Store till rotted, or mix freely with fresh manure	1 cartload fresh seaweed to 3 rods.
Leaf-mould	Allow to decay, then mix with the soil; when fresh may be dug deeply into the ground	1 cartload per 1-2 rods.
Compost refuse (clean garden rubbish)	Allow to decay then apply freely, and dig it in	—
Green manure (mustard, rape, vetches, lupins, grass, clovers, etc.)	Allow to grow until at maximum bulk, then turn over the soil to bury the plants	Sow the seeds thickly and as soon as ground is vacant.

Manures for Plants, Shrubs and Trees 217

Name	Most Suitable for	How Much to Use.
Spent hops	Mulch over the surface in summer and dig in during autumn and winter. Hop manures are spent hops reinforced by means of chemicals	1 load to 2 rods.
Malt dust and refuse Rape dust	Good for shrubs and trees Tells best on Potatoes and root crops, and on soils deficient in humus	$\frac{1}{2}$ bushel per rod. 1 lb. per sq. yd.
Horse refuse, shoddy, woollen waste, meat refuse	All of value if dug into the ground in autumn and allowed to decay thoroughly before cropping	—
House sewage, cess-pool contents	Spread over the ground in winter and dig in when dried; mix with soil during summer and store for winter use	—

HOW TO USE ARTIFICIAL MANURES

Name	Plants and Crops best suited for	When to Apply	How Much to Use.
Basic slag	All crops, but particularly fruits, Roses, shrubs, and root vegetables	Autumn or early winter	sq. yd. 4-8 oz. rod $\frac{1}{2}$ to 1 stone.
Blood manures	For leaf crops—Cabbage, Lettuce, Leek, etc.	Spring to summer	2-4 oz. $\frac{1}{4}$ to $\frac{1}{2}$ stone.
Bone-meal or bone-flour	May safely be used for all crops	Spring	3-4 oz. 6-8 lb.
Common Salt	Asparagus, Beet-root, Cabbage	Winter or spring	1 oz. 2 lb.
Dissolved bones	Fruits	Just before or during cropping	2-3 oz. 4-6 lb.
Fish guano	Herbaceous borders, flowers, shrubs	Spring to autumn	2 oz. 4 lb.
Guano	Promotes quick growth	During growth	1 oz. 2 lb.

Name	Plants and Crops best suited for	When to Apply	How much to Use.	
Kainit	Fruits, Asparagus, and root crops	Winter	sq. yd. 3-4 oz.	rod 6-7 lb.
Muriate of potash	General garden crops and flower borders	January to March	1 oz.	2 lb.
Native guano	Vegetables and flowers	Winter or early spring	3-4 oz.	½ stone.
Nitrate of ammonia	Special crops only	A liquid food for summer use	—	—
Nitrate of lime	For speedy development of seedlings and young plants	To plants in growth	1 oz.	2 lb.
Nitrate of soda	Do.	Do.	Do.	Do.
Nitrolim	Turnip, Cabbage, Leek, Onion, Carrot, etc.	Spring	Do.	Do.
Potassic superphosphate	Flowers of all kinds, Strawberries, Raspberries, and Loganberries	Spring	3 oz.	6 lb.
Saltpetre (nitrate of potash)	Fruit trees; as a liquid for flowers	Spring to autumn	1 oz.	2 lb.
Soot	Seedlings	During growth	—	—
Sulphate of iron	Lawn grass, fruit trees and Roses	Winter	½ oz.	½ lb.
Sulphate of ammonia	Potato, Carrot, Leek, Onion, etc.	A few weeks before cropping	1 oz.	2 lb.
Sulphate of potash	General garden work; essential for all crops	Spring	Do.	Do.
Superphosphate	General garden work; fruits, flowers, seed and root crops	Late spring	2-4 oz.	4-7 lb.
Wood ashes	Onion, Carrot, flowers; a surface dressing before planting	Late spring to summer	—	—
Example of good mixture	Bone-flour 1 part, sulphate of potash 2 parts, superphosphate 3 parts, guano 4 parts	Spring	3 oz.	6 lb.

INSECT AND OTHER PESTS

APPLE AND PEAR

Name	Damage done	Remedial Measures	When to apply Remedy.
Aphides or Green Fly	Sap sucked from leaves and young twigs	Soapy emulsions or any insecticide	Whenever the pests begin to attack.
American Blight or Woolly Aphis	Withdraw sap from branches and stem	(a) Paraffin wash, or (b) Caustic wash	(a) Spring or summer, (b) January.
Blossom Weevil	Buds and blossom eaten and rendered useless	Place paper or cloth treated with paint or tar below tree and shake the branches	April to May ; during flowering time.
Codling Moth	Eat into the fruits through the "eye," fruits fall prematurely	(a) Grease bands, or (b) Spray with arsenate of lead	(a) Autumn, (b) Immediately petals fall.
Fruit Tree Beetles	Bore holes into branches and destroy their vigour	(a) Lime - sulphur wash, or (b) Lime wash	(a) Early spring, (b) Winter or early spring.
Goat Moth	Grubs act as above	Inject paraffin or petrol into the large holes	Individual attention best.
Leaf Blister Mite	Causes blisters on leaves, and thus reduces their energy	Lime - sulphur or paraffin wash	First wash in late autumn; second in spring.
Leaf-eating Maggots	Caterpillars of many kinds which denude the trees of foliage	(a) Winter Caustic wash, or (b) Arsenate of lead	(a) January, (b) When the flowers have fallen.
Mussel Scale	Removes sap from the branches and trunk	(a) Caustic wash followed by (b) Paraffin and soft soap wash, if necessary	(a) January, (b) Summer.
Pear Midge	Fruits infested and rendered useless	Lime sulphur ; also apply fumigant to the soil	When buds open ; apply fumigant in winter.

Name	Damage done	Remedial Measures	When to apply Remedy.
Pith Moths	Burrow into young shoots and destroy them	(a) Burn infested shoots, (b) Spray with insecticide	(a) As noticed, (b) July.
Sawfly (Apple)	Eats its way into fruits from the side and destroys them	Dig the soil over; apply lime and a soil fumigant. Burn infected fruits	Early autumn, after first cold night. —
Sawfly (Pear)	Leaves are eaten up	As for Leaf-eating Maggots (above)	February (winter strength), May and August (summer strength).
Sucker (Apple)	Leaves, buds and flowers are eaten or disfigured	Spray three times with lime-sulphur	(a) February, (b) May and June. Grease bands in autumn.
Winter Moths	Leaves and soft twigs eaten	(a) Caustic wash, or (b) Arsenate of lead wash and grease bands	(a) Febru- ary, (b) May and June. Grease bands in autumn. —
Wood Leopard Moth	Tunnels into the woody parts of the tree	As for Goat Moth, and Fruit Tree Beetles	—
<i>PEACH, APRICOT, PLUM, CHERRY</i>			
Apricot Moth	Eats or rolls up the leaves	(a) Lime-sulphur (b) Arsenate of lead	(a) Winter, (b) Early summer.
Black Flies	Infest young twigs and ruin them	Soapy water, quassia solution or paraffin wash	When the pests ap- pear.
Cherry Sawfly	Slimy caterpillars or slugs which eat the foliage	Arsenate of lead spray; lime soil in winter	Spray in early summer.
Brown Peach Scale	Closely attached to twigs, lowering their vitality	Lime-sulphur wash or any good insec- ticide	January or Feb- ruary.
Red Spiders	Small mites which suck sap from leaves and twigs	Syringe freely with water or weak in- secticide	During summer.
Plum Sawfly	Flowers and young fruits eaten	Any insecticide; ap- ply soil fumigant in autumn	Apply in- secticide to the trees when in bud.

Name	Damage done	Remedial Measures	When to apply Remedy.
Plum Weevils	Bite the softer parts and may completely defoliate the tree	(a) Lime - sulphur, (b) Soil fumigant	(a) Summer, (b) Autumn or winter.

SMALL FRUITS

Big Bud Mite	Black Currant buds attacked ; they swell up and fail to develop	Handpick infested buds or cut out branches. Burn bushes badly attacked	Lime - sulphur wash in May and June.
Currant Aphides	Leaves are attacked, become blistered and useless	(a) Caustic wash, or (b) Insecticide. Handpick blistered leaves	(a) Winter, (b) Summer.
Currant Clear-wing	Eats into and destroys young shoots	Prune off and burn infested shoots	When they are noticed.
Currant and Gooseberry Sawfly	Eats the foliage	(a) Arsenate of lead wash, and (b) Lime the soil	(a) After fruits are gathered, (b) In autumn.
Currant and Gooseberry Scales	Infest the twigs and branches, lowering their energy	Caustic winter wash	December and January.
Magpie Moths	Eat the foliage	Handpick and use a strong wash	Arsenate of lead after crop gathered, or caustic wash in winter.
Raspberry Beetle	Beetles eat the flowers and maggots infest the fruits	Use paraffin wash and shake the pests on to paper or cloth freshly painted or tarred	Before flowering time.
Raspberry Weevil	Foliage eaten ; nocturnal feeders	Spray plants and soil as above, also use tarred paper at night	Whenever the foliage is eaten, but no pests seen in daytime.

Name	Damage done	Remedial Measures	When to apply Remedy.
Raspberry Moth	Buds, fruits and stems attacked	Fork away soil round the canes, apply plenty of soot and earth up again	June—July.
Raspberry and Loganberry Sawfly	Eats the foliage	Spray with arsenate of lead after fruits collected	Early autumn.
Eelworms	Microscopic pests attacking the roots of Strawberries	Burn infested plants; no cure	At earliest; thereafter lime the soil.

VINE AND FIG

Mealy Bug	Sucks sap from rods, chokes the leaves and makes Grapes unfit to eat	Scrub rods in winter with Gishurst compound. Kill isolated colonies with a brush dipped in petrol or paraffin	Scrub at pruning time, but watch for individuals assiduously all year.
Scale Insects	Suck sap from branches and twigs	Cleanse as for Mealy Bug in winter, and spray with quassia in summer	All year round.
Red Spiders and Thrips	These small creatures infest the foliage and cause leaves to droop and die	Keep everything moist and use salt water (1 oz. in 1 gallon) occasionally	During growing season. Spray underneath leaves.
Wasps	Attack and ruin the ripe fruits	Cover ventilators with muslin or trap the pests in beer diluted with water	Autumn.
Weevils	Eat and gnaw soft shoots and buds	Spread papers coated with fresh paint, oil or tar, and shake the rods over them	Do this at night when the pests feed. Renew surface soil in winter.

HARDY BULBS

Name	Damage done	Remedial Measures	When to apply Remedy.
Birds	Eat the flowers in early spring	Thread black cotton over the clumps	Just before flowering time.
Large Narcissus Fly	The grub eats into the bulbs from below upwards ; slowly destroys them	Destroy all bulbs which are infested	Watch for softness in new bulbs ; root up those which fail to grow properly and burn them.
Mice and Voles	Eat the bulbs	Trap them or spread poison round their haunts (phosphorous paste on bread)	When noticed or suspected.
Millipedes and Wire-worms	Gnaw into the bulbs and reduce their vigour	Fork Vaporite or other fumigant into the soil	Best done before planting time as a precaution.
Mites	Small pests inside the bulbs which cause them to develop feebly	Sterilization of the bulbs by hot water before planting	Before planting if possible.
Small Narcissus Fly	Grubs attack bulbs from above downwards, eating up the flesh of the bulb	Burn all those which are soft beforehand ; root up others which fail to flower properly	Careful attention before and after planting always necessary.
Soil Maggots	Eat the roots and cause the plant to become weakly	Lift up the bulb and search for the pest. Apply soot over the border	During the growing season.

OTHER TROUBLESONE PESTS

Ants	They encourage other pests and are obnoxious in themselves	Spray their haunts plentifully with water and insecticide	Summer.
Carnation Maggot	Feed inside the leaf and stem, gradually killing the plant	Nip off infested part and burn it. Pierce base of stem with hat-pin	Spring to autumn. Cultivate soil well.

Name	Damage done	Remedial Measures	When to apply Remedy
Cuckoo Spit	Pest inside the froth lowers the vitality of the plant	Wash off by syringing with insecticide	Summer and early autumn.
Earwigs	Infest flowers of Rose, Dahlia, etc.	Trap in crumpled paper, small pots of dry moss, folds of paper, etc.	Begin just before flowering time.
Leaf-miners	Burrow inside leaves of many plants; unsightly and injurious	Pinch off infested leaves and burn them; spray with insecticide	Spray on the appearance of the first one.
Nut Weevils	Infest the fruits of all nut bushes	Spray with paraffin emulsion and spray the soil also	Summer. Lime the soil in winter and burn infested fruits.
Worms	Throw up casts on the lawn and destroy its fine surface	1 oz. corrosive sub-limate (poison) in 25 gallons of water, or with lime-water	Spray the liquid freely after moist, mild weather.
Cats and dogs	Tear up flower beds in early summer	Sink tins in soil here and there, then pour some strong ammonia in them	When the animals haunt the garden.
Rabbits	Gnaw the bark off fruit tree trunks	Tie thorn branches round the trunks; don't paint with tar as is often done	Winter.

VEGETABLES

Asparagus Maggots	Grubs which eat into the succulent tips in spring	Burn infested tips and spray others with quassia wash or other insecticide	Spring. Trap the parent flies on twigs treated with birdlime.
Bean Black Fly	Infests tips of Bean plants and arrests all further growth	Nip off the tips and burn them, then spray with soapy water	Summer—when noticed.

Name	Damage done	Remedial Measures	When to apply Remedy
Cabbage Butterflies	Their caterpillars eat the leaves and stop growth	Handpick ; keep the young plants dusted freely with soot	Attend to the plants chiefly in May and June.
Cabbage Gall Weevil	Maggots found inside swellings on the roots of Cabbages, Cauliflowers, etc. Check growth	Spread sawdust impregnated with paraffin round the plants	Particular attention needed just after transplanting. Puddle roots of young plants in a mixture of soot, lime and water.
Cabbage Moth	The greenish caterpillars eat into and destroy the heart of the plant	Handpick and dust with soot ; no real cure	Careful attention when one or two pests appear saves many a crop.
Cabbage Root Fly	Maggots are found at the roots ; plants seldom grow to full development	Pull up and burn plants which droop under attack. Spread sawdust as advised for Gall Weevil. Put felt discs round base of plant	Attend to the plants assiduously from April to June.
Carrot Fly	Yellow maggots attack and spoil the roots	Keep the young plants dusted with soot or spray regularly with a "smelly" insecticide (paraffin)	Proceed with preventive measures at earliest to let the pest get no chance.
Celery and Parsnip Fly	Maggot infests the leaves which become blistered in appearance	Pinch the blisters to kill the maggot ; dust with soot or spray with insecticide regularly	Watch from planting-out time and keep pest in check.

Name	Damage done	Remedial Measures	When to apply Remedy
Leather Jackets	Soil maggots which gnaw the roots of all plants	Good tillage and regular liming are the best preventives	Good winter spade work spells freedom in summer from these pests.
Millipedes	Feed on the roots of all vegetables	Soil fumigants, soot and frequent tillage and hoeing	Good tillage all year is the best preventive.
Moles	Burrow in the soil and ruin growing crops	Trap or spread poisoned bait	Whenever one appears in the garden.
Onion Fly	Feeds on the bulbs, and ruins the crop	Impregnated sawdust as for Turnip Beetles below, or spray with paraffin emulsion or other insecticide with a smell	Always adopt these measures from the first as a prevention.
Pea and Bean Weevils	Enter the seeds and render them objectionable	Use immune seed ; no cure for plants infested during growth	Seed can be sterilized by carbon disulphide.
Slugs and Snails	Eat foliage wholesale ; particularly destructive to young plants	Handpick at night and scatter preventives over the ground	Lime infested soil in winter, and hunt them all the year.
Soil Maggots	Various grubs which attack the roots of many plants	Good cultivation and the use of lime, soot or other soil fumigants	Best work is done when the soil is dug or forked over in winter.
Thrips on Cucumbers	Cause the foliage to droop and so prevent growth	Spray with nicotine or use it as a fumigant ; plenty of water on floor	Whenever the plants look sickly.

Name	Damage done	Remedial Measures	When to apply Remedy
Turnip Beetles	Eat the succulent foliage of young Turnips, Mustard, Cabbages, etc.	Impregnate sand or sawdust with paraffin and scatter it alongside the plants	Whenever the foliage gets sickly and full of holes. May—June.
Turnip Fleas	Eat holes in the leaves of young plants and eventually destroy them	Dust with lime and soot; use nitrate of soda to urge growth past critical stage	
Turnip Sawflies	Eat the foliage	Spray with any good insecticide every second day	Continue until they are eradicated.
White or Snow Fly	Cripples the foliage of all plants infested; ruins crops eventually	Fumigate under glass with "White Fly Death," spray with nicotine in the open	Continue fighting until they disappear.
Wireworms	Proceed as with millipedes	Trap with pieces of Potato buried in the soil.	—
Woodlice	Will eat many plants	Trap under slates and with hollow Potatoes; pour boiling water where they hide	Nocturnal feeders; virulent where there is dirt and carelessness.

ROSES

Aphides	Pierce shoots, suck out sap and cripple growth	Spray with soapy water or insecticide	Summer and autumn.
Blossom Weevils	Attack the buds, gnaw them and spoil the flowers	Spray with insecticide and use some on the ground	After shaking the bush to rout out the pests. Do.
Chafer Beetles	Attack the flowers after they have opened, spoiling them	As above; nicotine is a good wash to use	
Leaf-eaters and Sawflies	Numerous caterpillars and grubs eat the foliage of Rose trees	Spray with arsenate of lead wash; hand pick	Early summer.

Name	Damage done	Remedial Measures	When to apply Remedy
Leaf-rollers	Caterpillars which eat some leaves and roll up the others into nests	Handpicking is essential first, then an insecticide	As soon as noticed.
Scale	Insects which attach themselves to stems and branches sucking vigour from them	A winter wash is best, but paraffin insecticide may also be used	Winter or summer.
Shoot Borers	Burrow into soft shoots and kill them	Nip off and burn shoots which are attacked	As noticed.

PLANT DISEASES AND REMEDIES

{ VEGETABLES }

Name	Nature of disease and damage done	Remedy	When to apply remedy
Celery Leaf Spot	Small discoloured areas on leaves, which increase in size until the whole plant rots away	Bordeaux or Burgundy mixture, two to four sprayings necessary according to severity	After rooting up plants badly attacked.
Club Root or Finger and Toe. (Cabbages, Sprouts, etc., also Turnips)	Distorted, gnarled roots. Caused by a minute organism which spreads rapidly and ruins each plant	Lime the soil well before planting; burn diseased plants. Puddle roots in lime, soil and water	Apply lime in winter and puddle roots when transplanting.
Cucumber and Melon Leaf Blotch	Grey to brown patches on the leaves; plants fail to grow after a bad attack; fruits produced always inferior	Ventilate freely and spray with any fungicide. Burn diseased leaves	Spray in anticipation. Use fresh compost every year.
Mint Rust	Rusty growths on stem and dark brown spots on leaves; plants not fit for use	Burn infested plants and start afresh with new stock in another spot	Whenever noticed. Grow in a fresh part of the garden.

Plant Diseases and Remedies

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Name	Nature of disease and damage done	Remedy	When to apply remedy
Onion Mildew	A grey mould over the plant which fails to develop properly	Burn diseased plants, then dust others with powder—2 parts lime and 1 sulphur	Apply powder on a dewy morning or after spraying with water.
Onion Rust	Red-brown rust on the leaves of all members of Onion family; destructive	Burn diseased plants and dust others as above.	As above.
Onion Smut	A black mould which quickly kills Onion plants	As above	At the earliest opportunity.
Pea Mildew	Plants droop and get yellow, then are covered with mildew. Plants fail to grow	Burn badly infested plants. Spray others with any dilute fungicide	Whenever noticed. Lime the soil.
Potato Disease	Dark brown patches on leaves with delicate mould over them; spreads to tubers and adversely affects crop	Spray with Bordeaux mixture. Dig up and use tubers of infested plants	Always spray in anticipation ; it pays.
Potato Black Scab or Wart Disease	Tubers show Cauliflower-like growths; these become black and the tuber rots	Inform the Ministry of Agriculture through the local representative	Immediately.
Potato Brown Scab or Corky Scab	Brown corky growths on the tubers ; useless tubers plentiful in a bad attack	Use scabby Potatoes first, and don't grow Potatoes in that spot for a season or two	Nothing much can be done until digging commences. Use clean seed tubers.
Potato Scab	A scabby skin but the flesh of the tuber is quite good	As above. Burn all parings	As above.
Potato Black Leg	The plant wilts and turns yellow ; the stems become black and rotten. Also injures the tubers	Burn haulm and use the tubers immediately. Use fresh seed and a fresh plot Do.	Watch for premature "wilting"—usually this disease.
Potato Leaf Curl	Leaves curl at the edges and become spotted ; growth stunted		Dig up diseased plants immediately.
Potato Rot (in winter)	Tubers develop rotten, pinkish, bad-smelling areas	Use affected tubers as far as possible ; burn others	Turn over the clamp when the disease is seen.

Name	Nature of disease and damage done	Remedy	When to apply remedy
Tomato Black Stripe	Stems and fruits bear black or brown stripes; fruits unsightly, but often of use	Burn badly diseased plants and spray others with Bordeaux or Burgundy mixture	Immediately, and ventilate more freely.
Tomato Black Spot	A round black spot near "eye" of fruit; spreads rapidly	Burn infected fruits and spray all plants with fungicide	Do.
Tomato Cracked Fruits	Not a disease, but decay soon sets in afterwards through mould entering the cracks	Due to bad or over-feeding. Use the fruits immediately they crack	When noticed. Ventilate freely.
Tomato Sleepy Disease	Plants droop, fail to grow and suddenly collapse	Burn the plant and spray others	Immediately. Give plenty of air.
Tomato Leaf Rust	Brown rust on leaves, spreading rapidly to stems and fruits. Virulent	Defoliate infested leaves and spray with weak Bordeaux mixture	Immediately; keep a dry free atmosphere.

HARDY FLOWERS

Carnation Rust	Red or brown spots on the foliage; plants killed eventually	Burn badly infested plants; defoliate infested leaves and spray with liver of sulphur, $\frac{1}{2}$ oz. in 1 gallon of water Do.	Immediately.
Hollyhock Rust	Brown spots or warts on under surface of leaves; leaves die; plant stunted.		Do.
Sweet Pea Streak	Yellow, brown or white streaks on stems and leaves; plants droop and die	Burn infested plants; spray others and soil with weak permanganate of potash solution	Do. Spray as a precaution.
Violet Spot, Rust and Smut	Various fungus growths developing on the leaves; the flowers and plants deteriorate rapidly	Burn infested plants and spray others with a fungicide	As soon as they are noticed.

Name	Nature of disease and damage done	Remedy	When to apply remedy
Rose Canker	Warty growths along the stems. Branches crippled	Cut away as far as possible, and paint wounds with tar	In winter and spring.
Rose Mildew	Familiar mealy growth on leaves and twigs; growth stifled	Spray with any fungicide or dust with sulphur	The earlier it is done the better.
Rose Rust	Orange spots on the foliage; plants injured gradually	Spray, but burn all badly infested bushes	Watch for this disease in autumn.
Rose Leaf Spot and Leaf Scorch	Yellow or black spots on the foliage; trees gradually deteriorate	Spray regularly from March with any fungicide	Constant attention eliminates both diseases.
Bulb Diseases	Moulds, rusts, smut and other fungi are parasitic on some flowering bulbs, and weaken the hosts considerably	We have come to the conclusion that there is no real cure; fork up and burn each one.	

GREENHOUSE AND FRAME

Damping-off	Dark appearance of stems of seedlings near ground, they topple over and die	Dust the soil with lime and ventilate more freely	Good ventilation is best preventive, or dust soil with crushed charcoal.
Brown Spots and Holes (Aspidistras and Palms)	Due often to a fungus or to careless treatment and insect pests	Encourage healthy growth first; if this is no cure, then spray with fungicide	—
Chrysanthemum Rust and Mildew	Two different diseases, both easily detected and distinguished; both cripple plants considerably	Spray repeatedly with liver of sulphur	Simply continue until the disease is eradicated.
Mildew (many plants)	The familiar mould or mealy cloud which is parasitic in so many plants	Dust with fine sulphur or spray with any fungicide	Never delay in treating mildew although no bad effects are noticed.

Name	Nature of disease and damage done	Remedy	When to apply remedy
Vine Mildew	This fungus begins on the leaves and cripples growth, but it soon spreads to the fruits and ruins them	Ventilate carefully and dust with dry sulphur or spray with liver of sulphur	After picking off infested leaves and fruits keep up all measures until cure obtained.
Grape Shanking	A shrivelling of the footstalks of the berries due to bad root conditions	See to the roots and get new drains and new compost	In winter.

HARDY FRUITS

Canker	Warty growths along branches; open, unsightly wounds and a contraction of the branch	Cut away all diseased parts to expose fresh wood; then paint wounds with tar	Best done during winter.
Scab (Apples and Pears)	Roundish black spots on the leaves; fruits also blotched and cracked	Burn diseased fruits and leaves. Spray with Bordeaux mixture on 3 occasions	When buds open, when petals fall and when fruits are size of Peas.
Mildew (Apples, etc.)	The familiar mealy parasite which strangles the twigs	Spray with any fungicide, and prune away affected twigs	Till the disease disappears.
Brown Rot (Apples)	Irregular blotches on the leaves, spreading to fruits, which show the markings generally in irregular concentric circles	Burn infested parts as for scab. Spray 3 or 4 times	When leaves unfold spray first, then at intervals of three weeks.
Leaf Scorch (Cherry)	Leaves develop yellow patches, then fall off prematurely	Burn the leaves and spray twice with any fungicide	Get both sprayings done before the flowers open.
Peach Leaf Curl	Leaves curl up in distorted fashion and eventually shrivel	Remove infested leaves and spray with Bordeaux mixture	Once in winter and once in spring after buds open.
Shot-hole fungus (Peach, Plum, etc.)	A parasite which makes holes in the leaves and hinders their functions	Spray with any good fungicide	Continue to do so until the disease disappears.

Plant Diseases and Remedies

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Name	Nature of disease and damage done	Remedy	When to apply remedy
Gummosis (Peach, Plum, etc.)	Globular drops of gum ooze from branches. Tree unhealthy	Dress soil with lime; paint wounds with mastic	Prune in summer to lessen winter work.
Silver Leaf (Many fruits)	Foliage develops a silvery or leaden appearance in certain branches; whole tree ultimately killed	Cut out infested branches rigorously and paint wounds with tar	Paint on the tar immediately after pruning.
Gooseberry Mildew (European)	A mildew or parasite "meal" which attacks the leaves, rarely the fruit; leaves fall off early	Spray with any fungicide and burn all dead leaves	Continue spraying until the disease dies out; don't leave it to develop.
American Gooseberry Mildew	A mildew which appears with the leaves and spreads to twigs and fruits. Twigs shrivel up; fruits damaged. Destructive	Notify the Ministry of Agriculture through the local police	
Strawberry Mildew	White downy appearance of leaves and fruit in May and June	Dust plants with fine sulphur	On a dewy morning; fruits not injured by sulphur.
Strawberry Leaf Spot	Brown, black, or grey spots on foliage. Leaves may shrivel and die	As above	As above.

PART FOUR
Indoor Gardening

CHAPTER XXIV

THE GREENHOUSE AND ITS MANAGEMENT

THE cultivation of plants under glass calls for greater skill, or at least for closer and more particular attention, than the care of those out of doors. They are chiefly grown in flower-pots and are therefore entirely dependent on the gardener for their supplies of water, and, too, they depend upon him for the temperature of the air, for freedom from draughts and other important details which go to make up the conditions that are essential to success. Plants out of doors are largely independent of the gardener in those matters.

A moderate degree of artificial warmth will enable the owner of a greenhouse to have a bright flower display all the year round, providing the management is correct. It is chiefly necessary to avoid a widely fluctuating temperature and this can be achieved only by careful ventilation, and by deciding in the first place what is to be the minimum degree of warmth in cold weather. If, say, a minimum of 40 or 45 degrees is decided on, the temperature can be regulated by careful manipulation of the ventilators so that it does not fluctuate violently. It is the usual custom to open the ventilators slightly when the thermometer registers ten degrees higher than the minimum and to increase the amount of ventilation as the day becomes warmer.

As the sun-heat declines, the ventilators should be partly closed and they must be shut before the sun has ceased to shine on the greenhouse roof. In winter and early spring the ventilators should be opened slightly if the weather is not cold, but they must be closed again soon after midday. In the summer months they ought not to be closed until evening, or in very hot weather they may with advantage be left open slightly all night. The temperature must not be allowed to rise very high and then lowered suddenly by opening the ventilators wide; that is certain to result in badly grown plants.

During the summer months the walls, floor and stage should be moistened occasionally but in winter as little water as possible should be used.

Watering is a subject on which the amateur often comes to grief. He seems unable to decide when a plant should be watered with anything like the certainty of the professional, and the matter is rather difficult to explain. One thing is certain, it is a great mistake to give a little water frequently to plants in flower-pots. They ought not to be watered until the soil becomes moderately dry, and then the flower-pot should be filled to the rim; no more water should be given until the soil again appears to be moderately dry. In winter, few plants require watering more often than once a week, and many need not be watered so frequently as that. In summer, of course, the soil dries more quickly and watering every day may be necessary.

Flowers All the Year Round.—For a flower display in summer the amateur should rely chiefly on such easily grown plants as Tuberous Begonias, Lilies, Annuals, yellow Arum Lily, Fuchsia, Gloxinia, Hydrangea and others named in the lists on page 202. For winter, there are Chinese and other Primulas, Cyclamen, Freesia,

forced bulbs, the blue Coleus *thyrsoideus*, Zonal Geraniums, Perpetual Flowering Carnations, and so on. Then in spring there are bulbs in variety, Cinerarias, Chimney Bellflower, Calceolarias, Lachenalia and others referred to in the lists on page 206. All these may be grown in a greenhouse in which an average temperature of from 45 to 50 degrees can be maintained in winter.

A Useful Heating Apparatus.—It may be of interest to refer briefly to a heating apparatus which I have found inexpensive and suitable for a small glasshouse in which it is desired to have plants in bloom during the greater part of the year. It is made of zinc and consists of a small boiler, and hot-water pipes and the heat is provided by a small oil lamp inside the greenhouse. But it has not the disadvantage that usually attaches to a lamp inside, for a chimney is fitted that carries away the fumes through the roof. At one end is a stand some 2 feet high containing at the bottom a place for the lamp and immediately above, forming part of the stand, is a small boiler. This is connected by small zinc pipes with a stand at the other end of the apparatus through the top of which the pipes are filled. The water gets warm an hour or so after the lamp is lit, and hot in two hours, though this matter is of course influenced to some extent by the weather. The water takes longer to get hot in severe weather and it is necessary therefore to light the lamp earlier in the evening.

By means of this small apparatus, which is made by several firms who advertise in the gardening papers, the temperature can be maintained at about 40 to 45 degrees at night except in very cold weather, when it may fall slightly below 40, but that will do no harm to the usual run of greenhouse plants.

It provides an ideal warmth for raising seedlings

in early spring. The lamp may be turned out in the morning unless the weather is exceptionally cold. Such an apparatus is economical to maintain, it needs little attention except that the lamp must be carefully trimmed and the flame carefully regulated so that it does not "smoke." It enables such winter flowers as Primulas and Perpetual Carnations to be grown excellently. For a list of flowers to be grown during the year and for brief details of cultivation the reader is referred to the lists on pages 202-209.

The Unheated Greenhouse.—One thinks of the cold or unheated glasshouse as a cheerless and uninviting place during the winter months, but it is not really so. It is surprising how rarely the air inside falls to freezing point if the greenhouse is in a sunny position in the garden. If the ventilators are closed early in the afternoon, before the sun has ceased to shine on the roof, the air generally remains moderately warm, or at least does not get cold during the night except in severe frost. Then additional protection can easily be afforded by covering choice plants with a few sheets of newspaper.

During the summer months one may have the unheated greenhouse gay with hardy annuals sown in flower-pots in spring, with Lilies and Tuberous Begonias potted in March, with Ixia and Sparaxis. In autumn there are Chrysanthemums, in spring bulbs in pots and alpine plants grown in flower-pots and flower-pans. Then one may pot up a few hardy plants in autumn and bring them into the greenhouse such for instance as Wallflower, Sweet William, Canterbury Bell, Dielytra, Forget-me-nots, and spring flowering shrubs. Auriculas are splendid plants to grow in pots in the unheated glasshouse, so, too, are Border Carnations and the new Perpetual Border Carnations which bloom for months together.

CHAPTER XXV

ROOM PLANTS

CERTAIN plants are so accommodating that they can be grown in a room, providing they are given correct treatment. It is not difficult to keep them in good health, though it is certainly easy to spoil them. It is obvious that the conditions in a room are not as favourable as in a greenhouse, hence room plants need careful tending.

Moving the plants from one position to another in the same or a different room is desirable if a greenhouse is not available in which the plants may recuperate from time to time. Plants grow or are drawn towards the light, hence to keep them nicely balanced it is necessary to turn them round at least once, preferably twice, a week. Some consideration must be given to the selection of positions for the plants. Light is more necessary to plants with beautiful flowers than to such as Aspidistra, Palms, and Ferns, though obviously all thrive better in a light than in a dark position.

The Aspidistra withstands the conditions of a room better than any other plant. Next to the Aspidistra, Palms are perhaps the most satisfactory. Dusting and washing the leaves of the plants is very necessary. They should be sponged once a week with tepid soft water containing just a little soap. Foliage plants may with advantage be placed outside during warm showers. A light syringeing is beneficial at intervals of two or three weeks. Sponging green-leaved plants with milk occasionally keeps them clean and glossy.

Hints on Watering.—The most important item in the cultivation of room plants is watering. While one can theorize at considerable length about such an important matter, it is a subject which can only be thoroughly understood by practice. It is obvious that plants in a room do not require as much water as if they were in a greenhouse. A vigorous plant in a small pot may require water every day in summer, while a larger plant which has an abundance of soil about the roots may only need water twice or thrice a week in summer, and not more than once a week in winter. Soft (rain) water is preferable for plants ; failing this, do not give water to room plants straight from the tap. In winter particularly the water should be slightly warmed before being used. Water which drains into the vases or saucers should be emptied out, as it is detrimental to the health of the plants for the pots to stand in water. Exceptions may occur when the pots are very full of roots and the soil dries up rapidly. Spiraeas (*Astilbes*), for instance, can scarcely have too much water.

A little fertilizer is beneficial at times to room plants, but it should not be overdone. A very little extra plant food suffices for room plants which it is desirable to maintain for a number of years in good health. In addition to being a suitable fertilizer for the plants, the stimulant chosen should be one that is not offensive in a room. Guano, Clay's Fertilizer and Rito are recommended.

Best Soil for Room Plants.—As the soil in the flower-pots in rooms does not dry up so rapidly as in a greenhouse, it is necessary to have ample drainage ; this usually consists of pieces of broken flower-pots placed in the bottom of the pots, to allow the surplus water to pass away freely. Coarse sand should be mixed freely with the potting soil to keep it " sweet " and open. In

potting room plants, do not fill the pots to the brim with soil. Leave about an inch for water, as in watering enough must be given to soak through the ball of soil. Simply moistening the surface soil each day is worse than useless, for that practice leaves the soil dry half-way down the pot, and the roots there will perish. Should the ball of a plant become dust-dry by accident, stand it in a bowl or pail of water for several minutes.

How to Increase Room Plants.—In a light window something may be done in the way of propagating plants from seeds by cuttings and division. Pieces of glass and sheets of paper are placed over seeds until germination commences. Cuttings of most of the popular room plants can be rooted in a window in pots of sandy soil under a bell-glass or even under a tumbler.

Drooping Plants for Baskets.—Several plants of drooping growth thrive particularly well in windows. They include the Rat-tail Cactus, *Campanula isophylla*, *Saxifraga*, and *Tradescantia*. Suspended pots are, as a rule, better than wire baskets in windows, for it is easier to fix a saucer under a pot to catch the surplus water.

The following notes contain a widely varied and interesting list of plants suitable for growing in a room. This could be increased almost indefinitely, but those given indicate how interesting a hobby may be made of the cultivation of room and window plants. Many readers may prefer to purchase small plants from the florist in preference to growing from seeds, cuttings, and division. The fact that plants are home-raised, however, increases the interest attaching to them.

PLANTS WITH ORNAMENTAL LEAVES

Aspidistra.—The commonest room plant, but not the most attractive, is the Aspidistra. If watered only when

the soil is reasonably dry and kept in the shade, this plant gives little trouble. The tips of the leaves often turn brown, and that is because they are rubbed or knocked by passers-by. Sometimes the leaves are disfigured by small round holes due to attacks of the shot-hole fungus ; a remedy is found in syringeing with a weak solution of permanganate of potash. Large plants may be divided in March, each portion being repotted to form a separate plant. Pots 6 inches wide are most suitable ; they ought to be thoroughly clean and drained by means of crocks ; the best compost is turfy soil with which a little leaf-soil and silver sand are mixed. Little water should be given for some weeks after repotting. The flowers of the Aspidistra are produced low down among the leaves, and their appearance often excites curiosity.

Araucaria excelsa.—The Norfolk Island Pine is a distinct and attractive plant which does well in a room. Large numbers are grown in two or three market nurseries near London, and reach the public by way of Covent Garden market and the florists' shops. Increase is by cuttings. Only the top of the plant is suitable, the side branches are useless, but when the top is taken off several shoots soon push out, and as this goes on indefinitely if one has a stock plant, quite a number can be raised in a few years. Insert the cuttings in sandy soil under a bell-glass. The best potting soil is a mixture of fibrous loam, leaf-mould, peat, and coarse sand.

Bellflowers.—Several Campanulas are notable and popular plants for hanging in windows. Increase is by cuttings, the best time being in autumn after flowering. They root readily in a window, under a bell-glass. Make up a gritty compost of fibrous loam, leaf-mould, coarse sand, and old mortar rubble. The best kinds are isophylla and the varieties alba superba and Mayii.

Chlorophytum elatum.—This is an attractive green-leaved "hanging" plant. When first potted in ordinary potting soil the plants can be stood on the window ledge. "Runners" soon push out on which young plants develop hanging over the pots, which ought then to be suspended. White flowers also develop on the runners, but they are not particularly showy. The young plants produce roots though hanging in the air, obviously providing a quick means of increase. There is a variety with green and yellow foliage.

Cordyline stricta.—The Cordyline or Dracaena is a most useful table plant. Increase is by cuttings and the thick underground stems. When portions of the latter are cut off and placed in a pot of sandy soil, young growths push up in a few weeks. The Cordyline thrives in ordinary potting soil.

Fatsia japonica.—Popularly known as Aralia and erroneously as Castor Oil Plant, Fatsia japonica is a favourite for rooms. The usual method of increase is by seeds, which grow quite well in a window. As a potting soil use fibrous loam, with a little leaf-mould and coarse sand. The Aralia seldom flowers in a pot, but when the plants become "leggy" and are planted in a sheltered position outside, flowering in autumn is not unusual.

Ficus elastica.—The India Rubber Plant is most ornamental, having large, attractive, leathery leaves. Plants 6 feet to 8 feet high can be grown in a light bay window. Sometimes the lower leaves fall off; that is due to one of two causes, improper watering or insufficient light for too long a period. Increase is by cuttings in spring, which will root under a bell-glass. Most potting soils are suitable for the India Rubber plant.

Palms.—A start in the cultivation of Palms is usually made by the purchase of small plants from the florist.

They are raised from seeds, but a greenhouse with considerable heat and moisture is necessary. Palms thrive in a fibrous, loamy soil with a little peat, leaf-mould, and coarse sand added. To facilitate drainage it is worth while smashing up a few pieces of charcoal and soft brick to mix with the potting soil. *Kentia Belmoreana* and *Kentia Forsteriana*, *Corypha australis*, *Phoenix Roebelinii*, and *Phoenix rupicola* are the hardiest for room culture.

Saxifraga sarmentosa.—This *Saxifrage* produces young plants on runners hanging all round the pot. Hence the name Mother of Thousands is appropriate. Pots 5 inches wide and suspended by wire are suitable. A very gritty soil is the best, and is easily obtained by mixing old mortar rubble in the compost when preparing it. The flowers are white.

Spiraea.—The White *Astilbe* or *Spiraea* is a popular room plant. Roots are lifted from the border in autumn and potted up. In early spring they should be stood in a window. Growth is very fast, and as the plants require abundance of moisture they are stood in saucers of water.

Tradescantia discolor.—This has trailing stems and is easily grown from cuttings. It is suitable to hang in a north window. Pot in ordinary soil.

FLOWERING PLANTS FOR ROOMS

Begonia Weltoniensis.—This plant is not uncommonly seen full of blossoms in a cottage window. This *Begonia* and another one, *Evansiana*, are as much at home in a window as in a greenhouse. Both have dainty coral-pink flowers. *Weltoniensis* has a tuberous-like rootstock and is propagated by cuttings. *Evansiana* also has a tuberous-like base, the stems dying down each year. In the axils of the leaves, however, this *Begonia* produces little bulbils which should be collected and kept in soil

during winter ; when watered in spring each one develops into a vigorous little plant. As potting soil use a mixture of equal parts turf-loam, peat, and leaf-mould, together with some coarse sand.

Clivia miniata.—This is one of the best of all flowering plants for a room. Even when not in bloom it is a beautiful foliage plant. In spring it produces deep orange-coloured blossoms. Clivias are increased by offsets which grow round the parent stem, and red fruits, the size of cherries, sometimes mature, each containing several seeds. As a potting soil use turf-loam, a little leaf-mould, coarse sand, decayed manure, and wood-ashes. Clivias flower best when grown in comparatively small pots.

Coronilla glauca.—This yellow flowered shrub from the Canary Isles is a beautiful room plant. Cuttings root readily under a bell-glass in sandy soil in early summer. The plants grow in ordinary potting soil and flower in spring. When the blooms have fallen a little pruning is usually necessary to shape the plants ; repot if necessary, then in a month's time stand outside for the summer, bringing in again to the window in autumn.

Fuchsia.—Fuchsias are very good window plants ; light is necessary, but they do not require sunlight, though a weekly change from a north to a south-east or west window is beneficial. Fuchsias root freely by means of cuttings inserted in sandy soil under bell-glasses in August. The plants rest in winter, the leaves fall off, and the pots can be stood down to make room for others.

Oxalis cernua (the Bermuda Buttercup) is an attractive plant for a sunny window, usually grown in a suspended flower-pot. It has yellow blossoms and little tuberous roots, by the division of which it is readily increased. There is also a pink-flowered kind, *Oxalis floribunda*.

Vallota purpurea.—The Scarlet Scarborough Lily is often seen growing and flowering better in a cottage window than in the best appointed greenhouse. The bulbs do not require large pots ; sometimes three are placed in a 6-inch pot. The pots must be well drained, then repotting is not necessary or desirable for four or five years. When potting, use fibrous turfy loam, a little leaf-mould, and coarse sand. Increase is by offsets from the bulbs. Grow in a sunny window.

Zonal Pelargonium (Geranium).—This popular kind may be cultivated in a sunny window from September to May ; for the remaining months the plants are placed outside on the window-sill in a window-box or planted in beds and borders. Increase is very easy by cuttings from April to August, no propagating case or bell-glass being necessary. One or two scented-leaved sorts and the Ivy-leaved Geraniums may also be included.

CACTI AND SUCCULENT PLANTS

In a light sunny window, Cacti and succulent plants are most interesting and very easy to manage. A large number can be cultivated successfully in a window ; the following are twelve of the best.

Cereus flagelliformis, the Rat-tail Cactus, thrives best in a hanging pot, rosy-red flowers ; Cereus speciosissimus, glowing scarlet-crimson blossoms ; Phyllocactuses Cooperi, white ; J. T. Peacock, rose-pink, and Niobe, red ; Pilocereus senilis, the Old-Man Cactus ; Aloe fruticans ; Gasteria verrucosa ; Rochea falcata ; Rhipsalis cassytha, the Mistletoe Cactus, suitable for hanging in a window ; Mamillaria viviparus, Bird's-nest Cactus, a spiny plant with purple flowers ; Crassula (Kalosanthes) coccinea, having flat heads of rich scarlet flowers.

Very well drained soil is necessary to the success of

these plants. A favourite compost with experts who specialize in Cactus is three parts turf-fibrous loam and one part smashed soft brick, with some old mortar rubble and coarse sand. Large pots are not necessary or desirable for Cactus, as most kinds are of slow growth. The pots must have ample drainage in the bottom. During the winter a small amount of water is needed by Cactus plants. One favourable point in growing Cacti and other succulent plants is that slight neglect in watering does no harm. This is due to the fact that there is a reserve of moisture stored in the thick, fleshy stems and leaves. Most of the twelve plants named above are readily increased by cuttings in summer ; if these are not available many Cacti can be raised from seeds.

FERNS FOR ROOMS

A number of Ferns are good room plants. At least a dozen may be grown in a room, while many more will thrive there for a long period, with a change for a few months in a greenhouse to recuperate.

Adiantum.—The Common Maidenhair Fern (*Adiantum cuneatum*) will stand in a window in summer for some months where there is little sun and no gas is burnt in the room. The varieties of the hardy Maidenhair (*Adiantum capillus-veneris*) are fairly good room plants. Division of the tufts or clumps in spring is the best method of increase. As a potting compost use equal parts of fibrous loam, peat, leaf-mould, and coarse sand.

Aspidium.—This is the Holly Fern, of which three kinds are desirable room plants, *A. falcatum* and the two varieties *Fortunei* and *caryotideum*. These Ferns thrive in ordinary potting soil, a mixture of loam, leaf-mould, and coarse sand. Increase is possible by division, but the usual method of propagation is from spores (Fern "seeds").

Asplenium.—The Carrot-leaved Ferns are elegant plants for the table. The best is *bulbiferum*, companion plants being *biforme* and *Colensoi*. Increase is by means of little plants which develop on the foliage from bulbils. Aspleniums thrive in ordinary potting soil, which is improved by adding peat. The Bird's-nest Fern (*Asplenium nidus*) is a distinct and striking plant for a large window.

Davallia canariensis, the Hare's-foot Fern, is a particularly good Fern for a room. The plants grow best in peat with sand added, or in a mixture of fibrous loam, peat, leaf-mould, and coarse sand, adding pieces of charcoal and broken crocks. Increase is by division of the rhizomes. This is a Fern which requires ample drainage, as it does not root deeply in the soil, hence at least one-third of the pot should be filled with broken crocks.

Platycerium alcicorne, the Stag's Horn Fern, is a native of Australia. It thrives in a mixture of peat, leaf-mould, and sphagnum moss, adding a few pieces of charcoal. In its native habitat this Fern grows on trees, and in a room or greenhouse it may be fastened to a block of wood instead of being grown in a flower-pot. Increase is by young plants which develop from bulbils formed on the roots.

Polypodium aureum, the Golden Polypody, is a distinct and beautiful Fern with grey-green leaves and a distinct rhizome. A fibrous soil of loam and leaf-mould is the best. Increase is by division, and spores grow quite freely.

Pterisces.—Ten or twelve of the popular Ribbon Ferns live and thrive in rooms. They may be increased by division, though in nurseries when large quantities are raised the Ribbon Ferns are raised from spores. They thrive in quite ordinary potting soil, a loamy mixture

with leaf-mould and coarse sand added. *Wimsettii*, *Childsii*, *cretica*, *cristata*, and *serrulata* are good sorts. Quite distinct from the Ribbon Ferns is the stronger growing and very useful *Pteris tremula*.

Hardy Ferns.—Among hardy Ferns the crested *Scolopendriums* (Hart's Tongue Ferns) thrive in rooms. They are evergreen and grow in ordinary potting soil. The varieties of *Scolopendrium vulgare* are readily raised from spores, while bulbils often develop on the older leaves. Some of the best varieties are *crispum*, *Kelwayii*, *cristatum* and *viviparum*.

Polystichum angulare, the Shield Fern, is a very good room plant, so also is the variety *proliferum* which produces young plants from bulbils on the older fronds, and is readily increased by this means. The Shield Ferns thrive in a loamy soil.

Filmy Ferns.—In a north window quite an interesting collection of Filmy Ferns may be grown in a glass case. The one objection sometimes raised is that they require to be kept too moist for a room. It is usual to have a water-tight lined box in which a bed of stones and soil is placed; in this the Ferns are planted and covered with a glass case. Four of the most distinct are the Killarney Fern (*Trichomanes radicans*), the Tunbridge Wells Fern (*Hymenophyllum Tunbridgense*), *Todea superba*, and *Trichomanes reniforme*.

Selaginella kraussiana is an interesting moss-like plant nearly allied to the Ferns. It is increased by cuttings inserted under a bell-glass. Sometimes the bell-glass is allowed to remain over the plants, but slightly tilted to admit air. The moss-green growths in time fill the glass and become very attractive. Other of the hardier *Selaginellas* for a room are *Emiliana*, *Mertensii*, and *uncinata*.

PART FIVE

Fruit and Vegetable Cultivation

CHAPTER XXVI

A CONCISE GUIDE TO FRUIT GROWING

THE cultivation of hardy fruit trees is as interesting as it is profitable. If a start is made on the right lines the rest is comparatively easy, but a false beginning may make all the difference between success and failure.

Planting should be done in autumn, late in October or in November, if possible, since it enables the trees to become well rooted by spring. It is a mistake to manure the ground heavily for fruit trees ; a little decayed manure may be mixed in the ground, but that is scarcely required ; as a rule, young fruit trees grow too vigorously during the first few years following planting. If fruit trees are planted in grass land it is most important to keep the soil clear of weeds and grass for 5 feet or so round about the stems.

Large holes should be taken out in deeply dug soil so that the roots may be spread out fully after broken and bruised ends have been cut off. The holes must be filled in to such an extent that when the trees are put in, the uppermost roots are within 2 or 3 inches of the surface. The soil needs to be made firm both above and below the roots. Standard trees must be securely staked, the stakes being inserted before the roots are covered.

How Far Apart to Plant.—Standard trees should

be from 15 to 20 feet apart, bush or pyramid trees 12 feet, cordons 2 feet, horizontal espalier or fan trained trees 15 feet apart. Gooseberry and Currant bushes should be 5 to 6 feet apart. Raspberry canes may be planted at 2 feet apart in rows 4 feet from each other. These are approximate distances, for in certain circumstances it may be necessary to vary them. If, for example, bush or pyramid Apple trees are on the Crab stock they must be planted not closer than 12 feet, whereas similar trees on the paradise stock, providing they are lifted and root-pruned several times during the first few years after planting, may be put at, say, 8 feet from each other.

Root Pruning.—This is usually necessary in dealing with young trees of Apple, Pear and Plum that make too vigorous growth and do not bear fruit. It may be carried out every other year for the first five or six years after planting. It is accomplished by taking out a trench some 4 feet from the tree stem, forking away the soil, thus exposing the main roots, and cutting back all thick ones and particularly those found directly beneath the tree. If, however, root pruning is practised regularly it is possible to lift young trees without difficulty, and cutting back the thick roots is easily accomplished. The trees must be replanted as soon as possible.

This practice checks the growth of the trees considerably the following year, and instead of making vigorous branches they are likely to produce fruit buds.

Fertile and Sterile Fruits.—A good deal has been written during recent years concerning the fertility and sterility of fruit trees. Some varieties are self-fertile, and are likely to bear crops, if conditions are suitable, whether other varieties are near them or not. On the other hand, some varieties are self-sterile, and unless their flowers can be fertilized by pollen from the flowers

of other sorts a satisfactory crop is not likely to result. It was at one time thought that certain varieties of self-sterile sorts had affinities in certain other self-fertile varieties, but it is now considered that the best way to ensure the fertilization of the flowers, and a consequent crop of fruits, is to mix the varieties freely, and particularly to mix the free blossoming cooking varieties with the dessert varieties.

The successful cultivation of hardy fruit trees depends to some considerable extent on pruning, spraying and the application of manures. The subject of pruning is dealt with in the notes concerning each kind.

Spraying.—The most useful winter spray is caustic soda used at the rate of 1 lb. to 5 gallons of water while the trees are leafless in January. Bordeaux mixture, which can be purchased in concentrated form ready for mixing with water, is valuable against fruit tree diseases if used in February. When the flowers of fruit trees have fallen, arsenate of lead wash should be used for the purpose of killing the caterpillars while they are small. This poison is used at the rate of 1 oz. in 1 gallon of water. During the summer months the trees should be kept clear of aphis by spraying them with one of the patent insecticides such as Abol.

Manures and Fertilizers.—Although it is not necessary to manure the ground for young fruit trees at planting time, as soon as they begin to bear fruit freely manures are needed. Basic slag, a chemical manure that supplies lime and phosphates, is invaluable and should be applied in autumn, 4 oz. per square yard, every third year. A mulch of farmyard manure is valuable if applied in spring, for it helps to keep the roots moist in summer. Bonemeal and superphosphate of lime applied in spring at 1 oz. per square yard are also to be recommended.

Apple.—Suitable for planting only in the open garden in the southern and other mild districts. In cold countries some of the best dessert Apples are worth growing against a wall. Bush or pyramid trees on the broad leaved paradise stock are most suitable for small gardens. Cordons planted at 2 feet apart and trained against a wire trellis are also valuable.

Pruning.—Summer pruning is carried out at the end of July or in August. It consists of shortening to within about six buds of the base the shoots that have grown during the summer ; those at the ends of the branches should not be pruned. In winter the shortened shoots are pruned to within two buds or so of where they started to grow in spring ; those at the ends of the branches are cut back by one-third or one-half according to whether they are weakly or vigorous. It is necessary to keep the branches about 12 inches apart, and to cut out those that tend to spoil the shape of the tree or to fill up the centre.

Varieties.—Dessert : Gladstone (July and August), Langley Pippin (July and August), Worcester Pearmain, St. Everard and James Grieve (September), St. Edmund's Russet and Ellison's Orange (October), Egremont Russet, Allington Pippin, King of Pippins and Cox's Orange Pippin (November), Adam's Pearmain (December), Mannington Pearmain and William Crump (January), May Queen, Lord Burghley, Sturmer Pippin, and Lord Hindlip (February to April). Cooking : Lord Grosvenor and Early Victoria (August), Potts' Seedling and Ecklinville (September), Rev. W. Wilks and Golden Spire (October), Lord Derby, Bismarck, Norfolk Beauty and Golden Noble (November), Bramley's Seedling (December), Lane's Prince Albert (January), Edward VII, Annie Elizabeth and Newton Wonder (late winter).

Blackberry.—The cultivated Blackberries are easily

grown on a fence or on a trellis and bear enormous crops of fruit. The best sort is the Parsley-leaved Blackberry. Valuable allied fruits are the Loganberry, Laxtonberry, and Lowberry. All are pruned in autumn by cutting out the shoots or branches that have borne fruit and training to the support as many new shoots as room can be found for.

Cherry.—This fruit may be grown in the form of bush, pyramid or standard trees, or on walls facing north or east. The disadvantage of growing Cherry trees in the open garden is that it is necessary to protect the crop from birds ; it is necessary also to protect the fruit on walls, but that is more easily done.

Pruning.—Trees in the open need little pruning, except during the first few years ; it is carried out as explained for the Apple. Fruit buds usually form freely if the branches are kept well apart, but side shoots must be pruned as explained in dealing with the Apple. Mix lime rubble with the soil for Cherry trees and apply basic slag every third year in autumn.

Varieties.—May Duke, Frogmore Bigarreau, Napoleon, Governor Wood, Early Rivers and Black Tartarian. The Morello Cherry is invaluable for planting against a wall facing north. It needs different pruning from the sweet Cherries ; pruning is done in autumn, old shoots being cut out as they can be replaced by fresh ones.

Currant, Black.—This invaluable bush needs deep moist soil, and thrives in a partially shaded place. The Black Currant mite has proved a serious pest, but may be checked by correct pruning.

Pruning.—Cut out the old branches or parts of them in autumn, or as soon as the fruit is gathered, so far as they can be replaced by fresh shoots of the current year's growth.

Varieties.—Boskoop Giant, Baldwin's, Blacksmith, Seabrook's Black and September Black.

Currant, Red and White.—These may be grown as bushes in the open garden or as cordons against a north wall or a trellis.

Pruning.—This is practised on the lines of that advised for Apple trees, that is, the side shoots should be summer and winter pruned. In winter they may be shortened to within half an inch or so of where they started to grow the previous spring.

Varieties.—Good White Currants are Dutch and White Versaillaise. Of Red Currants Fay's Prolific, Raby Castle, and Prince Albert should be grown.

Fig.—Fig trees may be grown out of doors in mild sunny districts if they are planted against a warm sheltered wall and their roots are restricted within a small area. It is usual to brick round the border to prevent the roots wandering afar. Unless this is done, the trees make vigorous growth and do not fruit well. Lime rubble should be mixed freely in the soil.

Pruning.—Only one crop of fruit can be expected on out-of-door trees, and that is produced by shoots of the previous year's growth, therefore these should be preserved and older ones cut out to make room for them.

Varieties.—Brown Turkey and White Marseilles are the most reliable varieties.

Gooseberry.—This fruit is chiefly grown as a bush, though it makes an excellent cordon for training against a trellis in the open garden, or for planting against a west, or even a north, wall. This bush fruit needs deep and well-manured soil.

Pruning.—In pruning cordons the side shoots must be shortened in summer and cut back to within one or two buds of the base in winter. Bushes, however, fruit

best when lightly pruned. The branches must be kept well apart from each other, say at a distance of 8 or 10 inches, by thinning out the oldest ones, or parts of them, and others that tend to block up the centres. The Gooseberry fruits freely on shoots of the previous year's growth, so these need not be shortened except just at the tips.

Varieties.—(Red) Crown Bob, Highlander, Iron-monger, Keen's Seedling, May Duke and Whinham's Industry. (Green) Gascoigne's, Langley Gage, Matchless, Plunder, Stockwell and Telegraph. (Yellow) Golden Lion, Langley Beauty, Leader, Leveller, Early Sulphur and Golden Gage. (White) Lady Leicester, Lancer, Shiner, Transparent and Whitesmith. Whinham's Industry is one of the best varieties for general cultivation.

Nectarine.—This delicious fruit can be grown on a sunny wall in the southern counties and other mild districts without difficulty. It needs the same treatment as the Peach (*which see*). Reliable varieties are Humboldt and Elrige.

Peach.—This fruit needs a warm and sunny wall if it is to be grown out of doors with success. Even then it may be necessary to protect the blooms when they are open ; it is usual to have detachable canvas blinds fitted so that they can be lowered when necessary.

Pruning.—The Peach and Nectarine bear their fruits chiefly on the past summer's shoots, and pruning, which is done as soon as the fruits are gathered, consists in cutting out those shoots which have fruited, and others of the same age, so that fresh ones can be trained in to replace them. The number of new shoots is limited by means of disbudding in spring. At this season many young shoots appear, but they must be gradually rubbed off until only one remains at the base of the old shoot

and another at the top ; the former will take its place for fruiting the following year.

Varieties.—Royal George, Stirling Castle, Bellegarde and Hale's Early.

Pear.—The advice given in respect of the cultivation of the Apple also applies to the Pear tree, and the pruning is practised on similar lines.

Varieties.—Jargonelle (August), Conference, Louise Bonne de Jersey, Fondante d'Automne, Durondeau (October), Emile d'Heyst, Beurré Hardy, Charles Ernest, Doyenné du Comice (November), Glou Morceau, Winter Nelis and Santa Claus (December), Bergamot d'Esperen, Josephine de Malines and Beurré de Jonghe (January). Good cooking Pears are Catillac and Vicar of Winkfield.

Plum.—This fruit is grown as a standard, bush, pyramid, and fan-trained espalier, and occasionally as a cordon, though it is less suitable for a cordon than the Apple and Pear. It needs well-drained soil containing lime, and is especially suitable for planting on chalky ground.

Pruning.—The advice given with respect to the Apple applies also to some extent to the Plum, but the pruning should be as light as possible. If the trees are root pruned occasionally when young and the branches are kept well apart, fruit buds will form freely, and there will be little occasion to prune hard ; the trees, however, must be kept shapely.

Varieties.—Dessert : Early Transparent Gage, Denniston's Gage, Oullin's Golden Gage and Stint (August), Coe's Golden Drop, Comte d'Althan's Gage, Green Gage, Jefferson, Kirke's, Late Transparent Gage and Reine Claude de Bavay (September) Golden Transparent (October). Culinary : Czar, Gisborne's, Pershore, Belle de Louvain and Rivers's Early Prolific

(August), Cox's Emperor, Pond's Seedling, Victoria and White Magnum Bonum (September), Monarch (October).

Raspberry.—This indispensable fruit needs deep and rich soil that will not become dry in summer, and it is best in partial shade. Heavy applications of manure in spring are advisable.

Pruning.—This consists in cutting out the canes or stems as soon as the fruits have been gathered, to make room for the fresh ones which will fruit the following year. The new canes ought to be limited to about half a dozen to each plant.

Varieties.—The most remarkable of present-day Raspberries is the variety Lloyd George, which fruits both in summer and in autumn. Other good red varieties are The Devon, Superlative, and Norwich Wonder. Good yellow Raspberries are The Guinea. Autumn fruiting Raspberries to be recommended are Hailsham and Merveille Rouge (red), and October Yellow (yellow); these varieties are pruned by cutting the stems almost to the ground in spring.

Strawberry.—This small fruit needs deeply cultivated and manured ground in a sunny position in the open garden, though an early crop may be obtained by planting on a warm border. It thrives best on fairly heavy land. The plant is increased by layering in June and July. The small plants on the runners are pegged into $2\frac{1}{2}$ inch flower pots filled with soil and sunk to the rims in the ground. Only one small plant should be chosen on each runner. They are secured in the pots by means of small wooden pegs pressed down over the stalk of the runner. If kept moist, the layers will form roots in 5 or 6 weeks, and should then be severed and planted out to form a fresh bed in August. Plant at 12 inches apart in rows 2 feet from each other, and destroy alternate plants after

one crop has been gathered. After it has produced three crops it is usual to destroy a Strawberry bed and plant afresh from layers. Layers should be taken from young, not from old plants, and preferably from those that have not borne a crop of fruit. In autumn, all disfigured leaves and weeds should be removed, the ground between the plants being forked up and manured.

Varieties.—Bedford Champion, Fillbasket, Givon's Late Prolific, Royal Sovereign and The Queen. Of the perpetual fruiting Strawberries, which are grown in the same way as the ordinary summer varieties, St. Antoine de Padoue and St. Fiacre are the best.

Vine.—Many of those who manage to obtain good crops of Apples, Pears, Plums and other hardy fruits seem to imagine that it is beyond their skill to cultivate the Vine. Once, however, a knowledge of the rules is gained there is nothing difficult about it, and anyone possessing a sunny greenhouse, whether heated or not, ought to be able to have home-grown Grapes. A good deal depends on the way in which the ventilation of the glasshouse is managed, but information on that subject is easily gained by a little experience.

The Best Grapes for Amateurs.—In order to begin well it is essential to choose the most suitable variety. There is no doubt that, of the large berried Grapes, the best for amateurs is Black Hamburgh. There are some delicious Grapes among the smaller berried varieties, and of these Buckland Sweetwater, which has greenish white Grapes, is to be recommended. Of the large kinds Madresfield Court, a delicious black Grape, and Alicante, also black, may be grown, though they are not quite so easily managed as Black Hamburgh.

When to Plant.—The best time to plant is in autumn when the Vine is at rest. Young Vines are grown in

large flower pots ; thus they can be transplanted without difficulty. Vines one year or two years old are usually supplied ; the latter may be expected to produce a bunch or two of Grapes the first summer after planting.

Making a Vine Border.—A well-prepared Vine border is essential, as a rule. In some gardens the soil may be so well suited to Grape growing as to need little preparation beyond digging over and manuring, but generally an excavation must be made some 5 feet long, 3 feet wide, and 2 feet deep, in order to give the Vine a really good start. That is half the battle, and it saves much trouble and disappointment later. When the bottom of the site has been dug over, drainage in the shape of broken bricks or clinkers should be put in ; on top of these comes some rough turf, and the remaining space is filled with turfy soil with which decayed manure and a scattering of bone-meal have been mixed. In such a border the Vine will make good progress, and when established will probably look after itself if manured from time to time. The border must be made firm by treading before the Vine is planted.

Planting the Vine.—When the young Vine has been turned out of its pot the ball of soil and roots should be immersed in a pail of water for an hour or two, so that all soil can be washed away from the roots ; the latter can then be spread out, whereas if this plan is not followed it will be found difficult to disentangle them. The roots should be covered only with 2 or 3 inches of soil, but care must be taken to make it firm. It is usual to plant the Vine in a border outside the glasshouse and to bring the stem to the inside through a hole made at the base of the greenhouse wall.

How to Prune.—It is in the pruning that most amateurs fail. One thing is certain ; pruning must be severe if the Vine is to continue to bear good Grapes, and

to remain vigorous. It must not be allowed to progress more than two to three feet in length each year ; as it will probably produce a shoot 5 or 6 feet long during the summer months, it follows that this must be shortened very considerably. Unless such hard pruning is practised, the Vine will become weak and the fruits will be small. If, however, the leading shoot, that which extends the main stem of the Vine, is shortened in winter to within 2 feet of where it started to grow the previous spring, and all the side or secondary shoots of the previous summer's growth are pruned at the same time to within one or two buds, the Vine will remain vigorous and healthy. Pruning should take place in December ; if it is postponed until early spring, the sap is likely to exude from the cut surfaces, and it may be difficult to prevent it.

Ventilating the Vinery.—If the glasshouse contains no other plants it should be ventilated in the winter, except in severe frost, for the Vine is hardy. As spring approaches the buds will start into growth, and care must be taken that they are not exposed to draughts of cold air. On bright days the ventilators should be opened slightly early in the morning, more widely as the warmth of the day increases, and must be closed early in the afternoon before the sun has ceased to shine on the roof. In this way the sun-heat is “bottled up,” as it were, and the glasshouse remains moderately warm all night.

Disbudding.—If more than one bud at the base of each side shoot starts into growth only one of the shoots should be allowed to remain, choosing the most vigorous. When the Vines are in flower the interior of the glasshouse ought to be kept dry and airy to aid in the dispersal of the pollen ; this is further assisted by tapping the trellis to which the Vine branches are tied.

When it is seen that the fruits are beginning to form,

the air of the glasshouse should again be kept moist by syringeing the walls and the floor, and occasionally it is a good plan to syringe the lower surface of the leaves to prevent attacks of red spider, a troublesome pest which flourishes in a dry air. During dry weather the border will need watering occasionally, and if a covering of fresh manure can be given so much the better.

When the side shoots are 10 inches or so long, and the bunches of Grapes can be clearly seen, the tips of the former should be pinched out at two leaves beyond the bunch. In a few weeks further young shoots will develop in the leaf axils, and these must be "stopped" as soon as they have produced one leaf each. Unless this summer pruning is practised regularly, it will be found difficult to control the growth of the Vine, which is luxuriant on established plants.

It is a mistake to allow many bunches to remain on the Vine during its early years. For the first year, two or three bunches are sufficient; for the third year, say half a dozen, and so on, gradually increasing the number. If too heavy a crop is allowed to remain the Grapes will not colour properly and their flavour will be poor.

As the Grapes begin to colour and to ripen, the glasshouse must be freely ventilated, and the air must again be kept fairly dry.

CHAPTER XXVII

A YEAR'S SUPPLY OF VEGETABLES

HOME-GROWN vegetables are very much better than bought ones, and it should be the aim of everyone who has sufficient land, and an opportunity of cultivating it, to maintain a supply all the year round.

Satisfactory vegetables can be produced only by good cultivation and by practising a proper rotation of crops. It pays to have the ground half trenched, that is dug two "spits" deep, but that is a somewhat laborious process. Yet if that practice is followed just for crops which need deep soil, in time the whole of the land will have been cultivated to that depth. It is, however, possible to produce vegetables of fair quality by merely digging the ground one "spit" deep and by manuring. Farmyard manure or an efficient substitute may be said to be indispensable to the cultivation of vegetables.

Reliance cannot be placed on artificial manures alone. Although they are valuable at the time, they add nothing to the store of humus or decayed vegetable matter in the land, and that is essential to its fertility. Spent hops, one of the patent hop manures, leaf-soil and decayed garden refuse are satisfactory substitutes for farmyard manure, and if they are supplemented by artificial manures good crops can be obtained.

The Rotation of Crops.—The way to ensure a perfect rotation of crops is to make a plan of the kitchen garden and to separate it into three parts. Those vegetables which were grown in Part I one year will be

grown in Part II the following year, those in Part II will be in Part III, and those in Part III will be in Part I. Thus every year each kind of crop will have a change of soil.

For the purpose of rotation kitchen garden crops may be separated into Greens, Root Crops, and those needing deeply tilled land such as Onion, Celery, Leek, Peas and Beans. The latter should be grown on Part I the first year, and the root crops on Part III ; then the following year the root crops will take their place ; the deep and moderately rich soil free from fresh manure is ideal for them. Part II, the first year, should be planted with early and second early Potatoes, and as soon as these are lifted, in July and August, the Winter Greens should be planted.

The Summer Vegetable Supply.—The chief vegetables available for use in summer are Peas, Broad, French, and Runner Beans, early Potatoes, Spinach, Turnip, Cauliflower, early Carrot, Cabbage, Tomato, Vegetable Marrow, and such salads as Radish and Lettuce.

Early Peas should be sown in March, mid-season Peas in April, and if a supply is required in late summer, a further sowing may be made in May. Sow the seeds an inch or so deep in a wide, flat-bottomed drill, at about 2 inches apart, the earliest sorts being sown rather more thickly. Good dwarf early varieties are Little Marvel, Laxtonian and Peter Pan. To follow these sow Daisy, Dwarf Defiance and Stratagem. An excellent variety for a later supply is Senator. Land deficient in lime will not grow good Peas, so it is wise to give a light scattering of this substance before sowing.

Broad Beans are sown in February or March, 1 to 2 inches deep and 5 inches apart ; if in a double row, the lines should be 12 inches apart. A sowing may be made

in November on light land. One of the Longpod varieties is the best for general cultivation.

French Beans are sown in mid-April, 1 inch deep and 4 inches apart, the seedlings being thinned to 8 inches from each other. Canadian Wonder is an excellent variety.

Runner Beans are sown towards the end of April or early in May. They thrive best in deep soil. If the soil is deep and rich the seeds should be sown 10 inches apart, in ordinary soil at 6 inches apart; they should be placed from 1 to 2 inches deep.

Early Potatoes are planted 5 inches deep, 10 inches apart, in rows 18 inches from each other in March; well sprouted tubers are best. A little decayed manure should be put in the drills or furrows, the tubers being placed directly on this. Good varieties are *Dunvegan, *Witch Hill, Duke of York, and Sharpe's Express. Those marked * are immune from wart disease. Second early Potatoes are planted early in April, 4 inches deep, 12 inches apart, in rows 2 feet from each other. Good varieties are Arran Comrade and Great Scot; both are immune from wart disease. Late or maincrop Potatoes are planted 4 inches deep, 15 inches apart, in rows 28 to 30 inches from each other. Good varieties are King Edward, *Abundance, *Tinwald Perfection and *Kerr's Pink. Those marked * are immune from wart disease.

Spinach is the earliest crop that can be gathered from an out-of-door sowing in spring; the seeds should be sown on rich soil $\frac{1}{2}$ inch deep, the seedlings being thinned out to 8 inches or so apart.

A sowing of Turnip should be made in March, the seeds being sown thinly $\frac{1}{2}$ inch or so deep, and the seedlings thinned to 5 inches apart. Early Milan and Snowball are suitable varieties for this sowing.

Small early Carrots are delicious in summer ; they may be obtained by sowing the variety Early Gem in April. Sow the seed in friable soil, and only just cover it with soil.

Tomato plants are put out against a sunny wall or fence early in June. To have well-developed plants by that time it is necessary to sow seed in February in a heated glasshouse. All side shoots must be removed as they develop during summer, the plants being restricted to one stem. Moneymaker, Sutton's A1 and Aviator are excellent varieties.

Seeds of Vegetable Marrow may be sown in late April where the plants are to be grown ; the seedlings should be covered with a handlight until they are well established. This fruit vegetable appreciates leaf-mould mixed freely with the soil. Pen-y-Byd is an excellent small-fruited variety.

Globe Beetroot will be ready to use in summer if seeds are sown in March, $\frac{1}{2}$ inch deep, in rows 12 inches apart ; the seedlings should be thinned to 6 inches apart.

Radish and Lettuce need rich friable soil and not too hot a site. Seed should be sown at intervals of a fortnight from early April until the end of May to furnish a succession of fresh salads.

The Winter Vegetable Supply.—The chief vegetables available for use in winter are Potato, Greens of various sorts, Parsnip, Carrot, Beetroot, Onion, Shallot, Celery, Leek and Cabbage.

Winter Greens, of which the chief are Brussels Sprouts, Kale of various sorts, Sprouting Broccoli, Savoy Cabbage, and large-headed Broccoli are raised from seed sown on a prepared seed border at the middle of March ; the seed is sown thinly in drills $\frac{1}{2}$ inch deep and 8 inches apart. The seedlings should be transplanted at 6 inches apart

before they become crowded, and be put out finally at about 2 feet apart in June, July and early August. Another sowing of Savoy Cabbage and large-headed Broccoli should be made in April.

Parsnip seed is sown in February or March, $\frac{1}{2}$ inch deep, in rows 15 inches apart ; the seedlings should be thinned to 9 inches from each other. The Student and Tender and True are reliable varieties.

Carrot seed is sown in April in very shallow drills set at 10 inches or so apart. The seedlings should be from 2 to 5 inches apart according to the vigour of the variety. New Red Intermediate and James' Intermediate are reliable varieties for general cultivation. These root crops need deep soil not recently manured.

Long-rooted Beet is sown $\frac{1}{2}$ inch deep in rows 12 inches apart early in May. Dell's Crimson and Cheltenham Green Top are good varieties.

Parsnips may be left in the ground to be dug as needed, but it is wise to lift Beetroot and Carrot in autumn and store the roots in soil or sand.

Onion seed should be sown early in August, and again in March, to provide Onions for autumn and winter. They need rich, deep, firm soil ; the seed is only lightly covered ; the seedlings should be 4 to 6 inches apart, and the rows 10 inches from each other. Rousham Park Hero, Premier and Ailsa Craig are good varieties.

The bulbs of Shallot are planted in February, merely being pressed into the soil till half covered, at 5 inches apart, in rows 10 inches from each other ; the crop should be lifted in August.

Celery and Leek are planted in June, the plants being raised from seed sown under glass in spring. Both need rich soil. They are often grown in trenches, but they may be planted on the flat, and blanched by means of

brown paper tied round them, instead of being earthed up with soil in the usual way.

Other invaluable crops are the following :

Cauliflower is grown from seed sown in August, the plants being wintered in a cold frame and planted out in spring. To produce a succession, seed should be sown in a frame, or out of doors on a seed bed, in March, the seedlings being planted out at 15 inches apart when large enough. Broccoli for autumn is raised from seed sown in March on a seed bed, the seedlings being planted in May or June. Colewort is an invaluable little Cabbage that "turns in" in early autumn if sown in May and June ; the seedlings should be thinned out, not transplanted.

Spring Cabbage is sown towards the end of July and again early in August ; the seedlings are planted out permanently in September or October at about 15 inches apart. Flower of Spring, April and Ellam's Early are reliable sorts.

Turnips for late autumn use are sown early in July.

Salsify and Scorzonera are root crops raised from seed sown out of doors in early May, the seedlings being thinned to 6 inches apart.

Onion "sets" are small bulbs which should be planted in March ; they will develop into fair sized bulbs by autumn, and are not damaged by the onion fly, which is often so destructive to seedlings.

The best time to plant Asparagus is in April. The bed should be 5 feet wide and raised above the ground level ; such a bed will take three rows of plants. No produce must be cut during the first year. Asparagus needs rich, well-drained soil and an application of kainit or salt, 1 oz. per square yard in autumn, is beneficial.

Rhubarb should be planted in February in deeply

dug and manured ground ; it does not mind partial shade. Allow 4 to 5 feet between each clump.

An easy way to force Rhubarb is to cover the clump with a box or inverted barrel and to surround this with fresh leaves or manure.

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